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OF THE

UNITED STATES NATIONAL MUSEUM.

No. 47.

THE FISHES

OF

NORTH AND MIDDLE AMERICA:

A DESCRIPTIVE CATALOGUE OF THE SPECIES OF FISH-LIKE VERTEBRATES FOUND IN THE WATERS OF NORTH AMERICA, NORTH OF THE ISTHMUS OF PANAMA.

BY

DAVID STARR JORDAN, Ph. D.,
PRESIDENT OF THE LELAND STANFORD JUNIOR UNIVERSITY AND OF THE CALIFORNIA ACADEMY OF SCIENCES,

AND

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PREFACE.

This volume is fourth and last of a descriptive catalogue of the fishes and fish-like vertebrates of North and Middle America. Part I, *Branchiostomatidæ* to *Priacanthidæ* inclusive (pp. 1 to 1240), was published October 3, 1896; Part II, *Lutianidæ* to *Cephalicanthidæ* inclusive (pp. 1241 to 2183), was published October 3, 1898; Part III, *Callionymidæ* to *Ogcocephalidæ* inclusive, including also "Addenda," an "Artificial Key to the Families of the True Fishes," a "Glossary of Technical Terms," and an "Index" complete for Parts I, II, and III (pp. 2183*a* to 3136), was published November 28, 1898; and Part IV, the present volume, appears on June 26, 1900.

Since the publication of Part III, investigations by Dr. Jordan, in Mexico, and by Dr. Evermann, in Puerto Rico, have added greatly to our knowledge of the fishes of those regions, and have made it desirable to incorporate in the present volume still further addenda.

Recent studies by Dr. Günther, of certain Linnæan types, show that some changes in nomenclature are necessary, which are also included.

David Starr Jordan.
Barton Warren Evermann.

Leland Stanford, Junior University,
Palo Alto, Santa Clara County, California.
March 15, 1900.

A SYSTEMATIC ARRANGEMENT OF THE FISHES OF NORTH AND MIDDLE AMERICA.

In these pages the authors exhibit, as clearly as the method will permit, their present views as to the genetic relations of the fishes and fish-like vertebrates of North and Middle America. This list is, in fact, a Table of Contents complete for the four volumes and corrected to include the Addenda (pp. 2745-2873 of Part III and pp. 3137-3197 of Part IV). From this Systematic Arrangement it is seen that the fish fauna of North and Middle America, as now understood by the present authors, embraces 3 classes, 30 orders, 225 families, 1113 genera, 325 subgenera, 3263 species, and 133 subspecies.

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  - interruptus (Gill) 1319
  - bicolor (Castelnau) 1319
  - scapularis (Tschudi) 1320
  - davidsonii (Steindachner) 1321
  - spleniatus (Poey) 1321
  - tæniatus, Gill 1322
  - virginicus (Linnæus) 1322
  - serrula (Cuvier & Valenciennes) 1323
- Genus Conodon, Cuvier & Valenciennes 1324
  - nobilis (Linnæus) 1324
  - serrifer, Jordan & Gilbert 1324
- Genus Brachydeuterus, Gill 1325
  - nitidus (Steindachner) 1326
  - corvinæformis (Steindachner) 1326
  - leuciscus (Günther) 1327
  - axillaris (Steindachner) 1328
- Genus Pomadasis, Lacépède 1329
  - Subgenus Rhencus, Jordan & Evermann 1331
    - panamensis (Steindachner) 1331
  - Subgenus Pristipoma, Cuvier 1331
    - bayanus, Jordan & Evermann 1331
    - productus (Poey) 1332
    - macracanthus (Günther) 1332
    - andrei (Sauvage) 1332
  - Subgenus Rhonciscus, Jordan & Evermann 1333
    - crocro (Cuvier & Valenciennes) 1333
    - branicki (Steindachner) 1333
    - ramosus (Poey) 1334
    - labraciforme (Boulenger) 3172
- Genus Orthopristis, Girard 1334
  - Subgenus Orthopristis 1336
    - forbesi, Jordan & Starks 1336
    - reddingi, Jordan & Richardson 1336
    - chalceus (Günther) 1337
    - chrysopterus (Linnæus) 1338
    - poeyi, Scudder 1339
    - cantharinus (Jenyns) 1339
  - Subgenus Evapristis, Jordan & Evermann 1340
    - lethopristis, Jordan & Fesler 1340
- Genus Isaciella, Jordan & Fesler 1340
  - brevipinnis (Steindachner) 1341
- Genus Microlepidotus, Gill 1341
  - inornatus, Gill 1341
- Genus Genyatremus, Gill 1342
  - luteus (Bloch) 1342

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- Genus Otrynter, Jordan & Evermann 1344
  - caprinus (Bean) 1345
- Genus Stenotomus, Gill 1345
  - chrysops (Linnæus) 1346
  - aculeatus (Cuvier & Valenciennes) 1346

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taurinus (Jenyns) 1354
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Genus Pagrus, Cuvier 1356
pagrus (Linnæus) 1356
Genus Lagodon, Holbrook 1357
rhomboides (Linnæus) 1358
Genus Archosargus, Gill 1358
Subgenus Salema, Jordan & Evermann 1359
unimaculatus (Bloch) 1359
pourtalesii (Steindachner) 1360
tridens (Poey) 1360
Subgenus Archosargus 1361
probatocephalus (Walbaum) 1361
aries (Cuvier & Valenciennes) 1361
Genus Diplodus, Rafinesque 1362
holbrookii (Bean) 1362
argenteus (Cuvier & Valenciennes) 1363
sargus (Linnæus) 1363
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Genus Spicara, Rafinesque 1364
martinica (Cuvier & Valenciennes) 1364
Genus Emmelichthys, Richardson 1365
Subgenus Inermia, Poey 1365
vittatus (Poey) 1365
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harengulus, Goode & Bean 1368
californiensis (Gill) 1369
gula (Cuvier & Valenciennes) 1370
Genus Ulæma, Jordan & Evermann 1371
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Genus Gerres, Cuvier 1373
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Subgenus Diapterus, Ranzani 1375
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- olisthostomus, Goode & Bean ... 1376
- Subgenus Gerres ... 1377
  - brevimanus, Günther ... 1377
  - lineatus (Humboldt) ... 1377
  - brasilianus, Cuvier & Valenciennes ... 1378
  - embryx, Jordan & Starks ... 1379
  - plumieri, Cuvier & Valenciennes ... 1379
  - mexicanus, Steindachner ... 1380
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  - Genus Girella, Gray ... 1381
    - nigricans (Ayres) ... 1382
  - Genus Doydixodon, Valenciennes ... 1382
    - freminvillei, Valenciennes ... 1382
  - Genus Hermosilla, Jenkins & Evermann ... 1383
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  - Genus Kyphosus, Lacépède ... 1384
    - analogus (Gill) ... 1385
    - incisor (Cuvier & Valenciennes) ... 1386
    - elegans (Peters) ... 1387
    - sectatrix (Linnæus) ... 1387
    - lutescens (Jordan & Gilbert) ... 1388
  - Genus Sectator, Jordan & Fesler ... 1389
    - ocyurus (Jordan & Gilbert) ... 1389
  - Genus Medialuna, Jordan & Fesler ... 1390
    - californiensis (Steindachner) ... 1391
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  - Genus Seriphus, Ayres ... 1397
    - politus, Ayres ... 1397
  - Genus Isopisthus, Gill ... 1398
    - remifer, Jordan & Gilbert ... 1398
    - parvipinnis (Cuvier & Valenciennes) ... 1399
  - Genus Buccone, Jordan & Evermann ... 1400
    - prædatoria (Jordan & Gilbert) ... 1400
  - Genus Cynoscion, Gill ... 1400
    - Subgenus Cynoscion ... 1403
      - acoupa (Lacépède) ... 1403
      - squamipinnis (Günther) ... 1404
      - othonopterus, Jordan & Gilbert ... 1404
      - obliquatus (Valenciennes) ... 1405
      - jamaicensis (Vaillant & Bocourt) ... 1406
      - nothus (Holbrook) ... 1406
      - regalis (Bloch & Schneider) ... 1407
      - thalassinus (Holbrook) ... 1407
      - reticulatus (Günther) ... 1408
      - nebulosus (Cuvier & Valenciennes) ... 1409
      - parvipinnis, Ayres ... 1410
      - xanthulus, Jordan & Gilbert ... 1410
      - albus (Günther) ... 1411
      - macdonaldi, Gilbert ... 1411
      - stolzmanni (Steindachner) ... 1412

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leiarchus (Cuvier & Valenciennes) ... 1414
virescens (Cuvier & Valenciennes) ... 1415
microlepidotus (Cuvier & Valenciennes) ... 1415
Genus Sagenichthys, Berg ... 1416
ancylodon (Bloch & Schneider) ... 1416
Genus Nebris, Cuvier & Valenciennes ... 1416
microps, Cuvier & Valenciennes ... 1417
occidentalis, Vaillant ... 1417; 3173
Genus Plagioscion, Gill ... 1418
squamosissimus (Heckel) ... 1418
heterolepis (Bleeker) ... 1419
surinamensis (Bleeker) ... 1419
Genus Larimus, Cuvier & Valenciennes ... 1420
Subgenus Amblyscion, Gill ... 1421
argenteus (Gill) ... 1421
Subgenus Larimus ... 1421
effulgens, Gilbert ... 1421
acclivis, Jordan & Bristol ... 1422
breviceps, Cuvier & Valenciennes ... 1423
pacificus, Jordan & Bollman ... 1424
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Genus Odontoscion, Gill ... 1425
dentex (Cuvier & Valenciennes) ... 1425
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Genus Corvula, Jordan & Eigenmann ... 1427
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sialis, Jordan & Eigenmann ... 1428
subæqualis (Poey) ... 1429
sanctæ-luciæ, Jordan ... 1429
batabana (Poey) ... 1430
Genus Elattarchus, Jordan & Evermann ... 1431
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Genus Bairdiella, Gill ... 1432
Subgenus Bairdiella ... 1433
chrysura (Lacépède) ... 1433
ensifera (Jordan & Gilbert) ... 1434
icistia (Jordan & Gilbert) ... 1435
ronchus (Cuvier & Valenciennes) ... 1436
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lanceolatus (Holbrook) 1443
ericymba (Jordan & Gilbert) 1444
microps (Steindachner) 1445
Subgenus Stellicarens, Gilbert 1445
zestocarus, Gilbert 1445
Genus Ophioscion, Gill 1446
Subgenus Ophioscion 1447
adustus (Agassiz) 1447
typicus, Gill 1448
trabo, Gilbert 1448
simulus, Gilbert 1449
imiceps (Jordan & Gilbert) 1451
scierus (Jordan & Gilbert) 1452
Subgenus Sigmurus, Gilbert 1452
vermicularis (Günther) 1452
Genus Sciænops, Gill 1453
ocellatus (Linnæus) 1453
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Subgenus Callaus, Jordan 1455
deliciosa (Tschudi) 1455
Subgenus Cheilotrema, Tschudi 1456
saturna (Girard) 1456
Genus Roncador, Jordan & Gilbert 1457
stearnsi (Steindachner) 1457
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xanthurus, Lacépède 1458
Genus Pachypops, Gill 1459
furcræus (Lacépède) 1459
Genus Genyonemus, Gill 1460
lineatus (Ayres) 1460
Genus Micropogon, Cuvier & Valenciennes 1461
undulatus (Linnæus) 1461
furnieri (Desmarest) 1462
megalops, Gilbert 1463
ectenes, Jordan & Gilbert 1463
altipinnis, Günther 1464
Genus Umbrina, Cuvier 1465
broussonetii, Cuvier & Valenciennes 1466
coroides, Cuvier & Valenciennes 1466
roncador, Jordan & Gilbert 1467
xanti, Gill 1467
sinaloæ, Scofield 1468
galapagorum, Steindachner 1468
dorsalis, Gill 1469
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simus, Jordan & Eigenmann 1472
nasus (Günther) 1473
panamensis (Steindachner) 1473
martinicensis (Cuvier & Valenciennes) 1473
americanus (Linnæus) 1474

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saxatilis (Bloch & Schneider) 1475
undulatus (Girard) 1476
Subgenus Umbrula, Jordan & Eigenmann 1476
elongatus (Günther) 1476
littoralis (Holbrook) 1477
Genus Paralonchurus, Bocourt 1477
Subgenus Polyclemus, Berg 1478
dumerili (Bocourt) 1478
Subgenus Zenoscion, Jordan & Evermann 1479
rathbuni (Jordan & Bollman) 1479
Subgenus Zaclemus, Gilbert 1480
goodei, Gilbert 1480
Subgenus Paralonchurus 1481
petersi, Bocourt 1481
Genus Lonchiurus, Bloch 1481
lanceolatus (Bloch) 1481
Genus Pogonias, Lacépède 1482
cromis (Linnæus) 1482
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Genus Aplodinotus, Rafinesque 1483
grunniens, Rafinesque 1484
Genus Eques, Bloch 1485
Subgenus Pareques, Gill 1486
viola, Gilbert 1486
acuminatus (Bloch & Schneider) 1487
umbrosus, Jordan & Eigenmann 1487
punctatus, Bloch & Schneider 1488
pulcher, Steindachner 1489
Subgenus Eques 1489
lanceolatus (Linnæus) 1489
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rivulatus, Valenciennes 1491
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Genus Abeona, Girard 1496
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aurora, Jordan & Gilbert 1497
Genus Cymatogaster, Gibbons 1498
aggregatus, Gibbons 1498
Genus Brachyistius, Gill 1499
frenatus, Gill 1499
Genus Zalembius, Jordan & Evermann 1499
rosaceus (Jordan & Gilbert) 1500
Genus Hypocritichthys, Gill 1500
analis (Alexander Agassiz) 1500

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argenteus, Gibbons 1501
agassizii, Gill 1502
Genus Holconotus, Agassiz 1502
rhodoterus, Agassiz 1502
Genus Amphisticus, Agassiz 1503
argenteus, Agassiz 1503
Genus Embiotoca, Agassiz 1504
jacksoni, Agassiz 1504
Genus Tæniotoca, Alexander Agassiz 1505
lateralis (Agassiz) 1505
Genus Phanerodon, Girard 1506
furcatus, Girard 1506
artipes (Jordan & Gilbert) 1507
Genus Rhacochilus, Agassiz 1507
toxotes, Agassiz 1507
Genus Hypsurus, Alexander Agassiz 1508
caryi (Agassiz) 1508
Genus Damalichthys, Girard 1509
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splendida, Günther 1513
Genus Æquidens, Eigenmann & Bray 1513
cœruleopunctatus (Kner & Steindachner) 1514
Genus Cichlasoma, Swainson 1514
Subgenus Cichlasoma 1515
rectangulare (Steindachner) 1515
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sieboldii (Kner & Steindachner) 1516
intermedium (Günther) 1517
anguliferum (Günther) 1517
fenestratum (Günther) 1518
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helleri (Steindachner) 1521
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melanopogon (Steindachner) 1523
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nigrofasciatum (Günther) 1525

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- multispinosum (Günther) 1525
- centrarchus (Gill & Bransford) 1526
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Genus Heros, Heckel 1526
- friedrichsthali, Heckel 1528
- salvini, Günther 1528
- affinis, Günther 1529
- maculipinnis, Steindachner 1529
- trimaculatus, Günther 1529
- labiatus, Günther 1530
- lobochilus, Günther 1530
- erythræus, Günther 1531
- basilaris, Gill & Bransford 1532
- nicaraguensis, Günther 1532
- managuensis, Günther 1533
- aureus, Günther 1533
- citrinellus, Günther 1534
- motaguensis, Günther 1534
- oblongus, Günther 1535
- dovii, Günther 1535
- gibbiceps, Steindachner 1536
- microphthalmus, Günther 1536
- urophthalmus, Günther 1537
- troscheli, Steindachner 1537
- cyanoguttatus (Baird & Girard) 1537
- pavonaceus, Garman 1538
- altifrons, Kner & Steindachner 1538
- beani, Jordan 1538
- tetracanthus (Cuvier & Valenciennes) 1539
- istlanus, Jordan & Snyder 3174

Genus Theraps, Günther 1540
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Genus Neetroplus, Günther 1541
- nematopus, Günther 1541
- nicaraguensis, Gill & Bransford 1542
- carpintis, Jordan & Snyder 3175

Genus Satanoperca, Günther 1542
- crassilabris (Steindachner) 1542

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Genus Azurina, Jordan & McGregor 1544
- hirundo, Jordan & McGregor 1544

Genus Chromis, Cuvier 1545
- Subgenus Furcaria, Poey 1546
  - atrilobatus, Gill 1546
  - cyaneus (Poey) 1547
  - multilineatus (Guichenot) 1547
- Subgenus Ayresia, Cooper 1548
  - punctipinnis (Cooper) 1548
- Subgenus Heliases, Cuvier & Valenciennes 1548
  - insolatus (Cuvier & Valenciennes) 1548
  - enchrysurus, Jordan & Gilbert 1548

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leucorus (Gilbert) 1551
adustus (Troschel) 1551
fuscus (Cuvier & Valenciennes) 1552
diencæus, Jordan & Rutter 1552
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analis (Poey) 1554
otophorus (Poey) 1555
leucostictus (Müller & Troschel) 1555
flaviventer (Troschel) 1557
partitus (Poey) 1558
planifrons (Cuvier & Valenciennes) 1559
Genus Nexilarius, Gilbert 1559
concolor (Gill) 1559
Genus Abudefduf, Forskål 1560
Subgenus Glyphisodon, Lacépède 1561
saxatilis (Linnæus) 1561
Subgenus Euschistodus, Gill 1562
declivifrons (Gill) 1562
analogus (Gill) 1563
taurus (Müller & Troschel) 1563
rudis (Poey) 1563
Genus Hypsypops, Gill 1564
rubicundus (Girard) 1564
Genus Microspathodon, Günther 1565
bairdii (Gill) 1566
chrysurus (Cuvier & Valenciennes) 1567
niveatus (Poey) 1567
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Genus Centrolabrus, Günther 1575
exoletus (Linnæus) 1576
Genus Tautogolabrus, Günther 1576
adspersus (Walbaum) 1577
Genus Tautoga, Mitchill 1577
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Genus Lachnolaimus, Cuvier & Valenciennes 1579
maximus (Walbaum) 1579
Genus Harpe, Lacépède 1581
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Genus Decodon, Günther 1584
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Genus Pimelometopon, Gill 1585
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darwinii (Jenyns) 1586
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  radiatus (Linnæus) 1590
  nicholsi (Jordan & Gilbert) 1591
  sellifer (Gilbert) 1592
  semicinctus (Ayres) 1592
  garnoti (Cuvier & Valenciennes) 1593
  cyanocephalus (Bloch) 1594
  maculipinna (Müller & Troschel) 1594
  bivittatus (Bloch) 1595
  dispilus (Günther) 1597
  kirschii, Jordan & Evermann 1598
  poeyi (Steindachner) 1599
  caudalis (Poey) 1599
  pictus (Poey) 1599
Genus Oxyjulis, Gill 1601
  californicus (Günther) 1601
Genus Emmeekia, Jordan & Evermann 1601
  venusta (Jenkins & Evermann) 1602
Genus Julidio, Jordan & Evermann 1602
  adustus (Gilbert) 1602
  notospilus (Günther) 1603
Genus Pseudojulis, Bleeker 1604
  inornatus, Gilbert 1604
  melanotis, Gilbert 1605
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  lucasanum (Gill) 1607; 2859
  socorroense, Gilbert 1607; 2859
  nitidum (Günther) 1608; 2859
  nitidissimum (Goode) 1608; 2859
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  bifasciatum (Bloch) 1609; 2859
  grammaticum, Gilbert 1610; 2859
  virens, Gilbert 1610; 2859
Genus Doratonotus, Günther 1611
  megalepis, Günther 1611
  decoris, Evermann & Marsh 3177
Genus Xyrula, Jordan 1612
  jessiæ (Jordan) 1612
Genus Novaculichthys, Bleeker 1613
  rosipes (Jordan & Gilbert) 1614
  ventralis (Bean) 1615
  infirmus (Bean) 1616
  martinicensis (Cuvier & Valenciennes) 1616
Genus Xyrichthys, Cuvier 1617
  mundiceps, Gill 1618
  psittacus (Linnæus) 1618
  modestus, Poey 1619
Genus Iniistius, Gill 1619
  mundicorpus, Gill 1620
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Genus Cryptotomus, Cope 1621
  dentiens (Poey) 1623
  retractus (Poey) 1623
  ustus (Cuvier & Valenciennes) 1624

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            auropunctatus (Cuvier & Valenciennes) 1624
            beryllinus, Jordan & Swain 1625
            roseus, Cope 1626
          Genus Calotomus, Gilbert 1626
            xenodon, Gilbert 1626
          Genus Sparisoma, Swainson 1627
            Subgenus Sparisoma 1630
              xystrodon, Jordan & Swain 1630
              atomarium (Poey) 1631
              radians (Cuvier & Valenciennes) 1631
              hoplomystax (Cope) 1632
              niphobles, Jordan & Bollman 1633
              aurofrenatum (Cuvier & Valenciennes) 1634
              oxybrachium (Poey) 1634
              abildgaardi (Bloch) 1635
              distinctum (Poey) 1635
              chrysopterum (Bloch & Schneider) 1636
              lorito, Jordan & Swain 1637
              viride (Bonnaterre) 1638
            Subgenus Euscarus, Jordan & Evermann 1639
              strigatum (Günther) 1639
              flavescens (Bloch & Schneider) 1639
              rubripinne (Cuvier & Valenciennes) 1640
              brachiale (Poey) 1641
              maschalespilos (Bleeker) 1641
              frondosum (Cuvier) 1642
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ADDITIONAL ADDENDA.

Since the publication of Part III of this work a number of new genera and species of fishes have been described from localities within our limits, and our knowledge regarding the relations and distribution of previously known species has been enlarged. These additions and corrections are given in the following pages:

Page 130. After *Hexamenatichthys rugispinus* (Cuvier & Valenciennes), insert the following:

195 (a). GALEICHTHYS LABIATUS (Boulenger).

Head 3½; width of head 1⅖ in its length; depth 5; eye 9 in head. D. I, 7; A. 17. Band of premaxillary teeth 4 times longer than wide, the width half the eye; palatine teeth conical, in 2 small oblique groups, much smaller than eye, and separated by a space equal to ¾ the length of premaxillary band; eye situated above level of mouth, in anterior half of head, 4 in interocular space; occiput and occipital prolongation granular, this last a little longer than wide, with an obtuse spine; fontanelle narrow, not distinct, followed by a groove which does not reach the occipital prolongation; lips thick, the upper overhanging the lower, as in *G. rugispinus*, to which this species is closely related; barbels flattened; maxillary 1⅔ in head, not reaching edge of opercle; external mandible 1½ times as long as internal, 2 in head; gill membrane with a free, unbroken edge; dorsal spine with indistinct serrations, covered with skin, its length a little less than ½ head; adipose dorsal as long at base as rayed dorsal, twice as far from it as from the caudal; humeral prolongation smooth; pectoral spine 2½ in head, enveloped in skin like the dorsal spine, much shorter than the soft rays; ventral shorter, reaching origin of anal; caudal deeply forked, with pointed lobes; caudal peduncle 2½ times longer than deep; no maxillary pore. Blackish gray above, silvery below; all the fins blackish. Length 470 mm. Known only from a single specimen from Rio Peripa, Ecuador. (Boulenger.) (*labiatus*, having large lips.)

Arius labiatus, Boulenger, Bollettino dei Mus. di Zool. ed. Anat. Comp. della Univ. di Torino, Vol. XIII, No. 329, 6, Dec. 2, 1898, Rio Peripa, Ecuador. (Coll. Dr. Enrico Festa.)

Page 132. After *Tachysurus melanopus* (Günther), insert the following:

200 (a). TACHYSURUS FESTÆ (Boulenger).

Head 4; depth 4; eye 6½, above level of mouth, in anterior part of head. D. 17; A. 23. Premaxillary band of teeth 4 times longer than broad, its width 2½ in eye, or equal to width of groups of vomer and palatine teeth, these last granular, forming 2 large, oblique groups, separated on the median line by a space equal to ⅓ diameter of eye; width of head 1¼ in its length; occiput and occipital prolongation granular, the last as long as wide, and with blunt spine; fontanelle narrow, commencing in a groove between the anterior nostrils and reaching occiput, not reaching occipital prolongation; barbels flattened: maxillary as long as head, reaching beyond base of pectoral spine; external mandible a little shorter, as long as the internal; gill-membrane with a free border broken at the isthmus; anal spine striated, 1¼ in head, its anterior edge feebly toothed except at extremity, which has, like the posterior edge, stronger and more retrorse teeth; adipose dorsal twice as far from rayed dorsal as from caudal, its base 1½ in base of rayed dorsal; pectoral spine 1½ in head, its external edge furnished with a series of soft, small tubercles on its basal half, anterior edge armed with feeble retrorse teeth; ventral shorter, reaching origin of anal; caudal deeply forked; caudal peduncle twice as long as deep; axillary pore present, much smaller than the nostril. Color steel blue above, silvery below. This species closely resembles *Tachysurus liropus*, Bristol. Length 210 mm. One specimen known, from Narrangal, Ecuador. (Boulenger.) (Named for the collector of the type, Dr. Enrico Festa.)

Arius festæ, BOULENGER, Bollettino dei Mus. di Zool. ed. Anat. Comp. della Univ. di Torino, Vol. XIII, No. 329, 5, Dec. 2, 1898, Narrangal, Ecuador.

Page 135. After *Ictalurus meridionalis* (Günther), insert:

76 (a). ISTLARIUS, Jordan & Snyder.

Istlarius, JORDAN & SNYDER, Bull. U. S. Fish Com. 1899 (1900), 118 (*balsanus*).

Body rather deep and compressed; head not widened, nor greatly depressed; eye large; lower jaw included; teeth in villiform bands on premaxillaries and dentaries; the premaxillary band convex anteriorly, with a short angular posterior extension on each side, no division of the band at symphysis; dentary band broad anteriorly, growing narrow and pointed posteriorly, with a distinct median division; no teeth on vomer or palatines; villiform teeth on upper and lower pharyngeals; gill-rakers on first arch 17, long and slender; branchiostegals 8; air bladder very large, extending almost to posterior end of body cavity, divided by a transverse constriction into two parts of nearly equal length, the anterior heart-shaped, posterior part oval; supraoccipital bone widely separated from interspinal; humeral process short, almost hidden by the skin; lateral line extending from below insertion of dorsal to caudal; skin covered with minute, hairlike villi; skin of head completely concealing bones of skull; barbels 8. Spines with distal parts soft, not branched, continuous with the hard parts; basal part of pectoral spine grooved posteriorly, weakly serrate above the groove.

Istlarius has some of the characters of the genus *Leptops*, notably the dentition of the upper jaw and the weakness of the fin-spines; but it more closely resembles *Ictalurus*, and its relationship is probably with that genus.

(Named for the Rio Ixtla, the type locality of the type species.)

208 (a). ISTLARIUS BALSANUS, Jordan & Snyder.

Head 4; depth $4\frac{2}{3}$; depth of caudal peduncle $2\frac{1}{3}$ in head; eye $5\frac{1}{2}$; snout $2\frac{3}{5}$; distance between eyes $2\frac{1}{2}$; height of dorsal $1\frac{1}{5}$; length of base of dorsal 3; height of anal $1\frac{2}{3}$; length of base of anal 1; length of pectoral $1\frac{1}{2}$; ventrals $1\frac{2}{3}$; caudal 1; D. I, 6; A. 24. Body deep and somewhat compressed, deepest above ventrals, widest between pectorals; head narrow, not greatly depressed; eye large, nearer tip of snout than to posterior edge of opercle a distance equal to diameter of eye; interorbital space convex; width of mouth $2\frac{1}{2}$ in head, lower jaw included; upper jaw projecting a distance equal to diameter of pupil; barbels 8; of the inferior ones the median pair shorter; distance between their bases equal to the diameter of pupil; the outer pair when extended directly backward reach the edges of gill covers; maxillary barbels longest, reaching upper angle of gill opening; nostril barbels reaching middle of pupil. Teeth in broad villiform bands on premaxillaries and dentaries, the band on upper jaw convex anteriorly, with a short, angular posterior extension on each side, no apparent division of the band at symphysis; band on lower jaw broad anteriorly, narrow and pointed posteriorly, a distinct median division; no teeth on vomer or palatines; upper pharyngeal teeth in oval villiform bands; lower pharyngeal teeth in 2 narrow oblong bands; gill-rakers on first arch 17, long and slender; branchiostegals 8; anterior nostril tubular, the posterior with a raised rim extending on each side from the barbel to the posterior edge of the opening, where it is divided; skin of head completely concealing the bones of skull; supraoccipital bone not in contact with interspinal; humeral process about as long as vertical diameter of eye, almost hidden by the thick skin; lateral line extending from a perpendicular through insertion of dorsal to caudal; skin covered with minute, hair-like villi; dorsal spine with its distal third soft, preceded by a small, angular, immature spine; first branched ray longest, the others gradually shorter; adipose fin large, above middle of anal; length of the posterior free edge 3 times diameter of pupil; third or fourth anal ray longest, edge of fin rounded posteriorly; caudal deeply forked, the lower lobe rounded, the upper rather pointed; pectoral rays I, 11, distal two-thirds of spine soft, not branched, continuous with the hard part: basal part grooved posteriorly, weakly serrate above the groove; ventrals reaching origin of anal. Color bluish slate above, light silvery below; a few small dark spots on the head and body; fins with dusky coloring; inferior barbels light; maxillary barbels with upper half dark; nasal barbules with light edges. Some specimens have many well-defined color spots, while others have few or none. The young have no spots. Our specimens vary in length from 10 to 60 centimeters.

Istlarius balsanus has a large and rather complex air bladder. It lies close to the spinal column and extends almost to the posterior end of the body cavity. It is divided by a deep transverse constriction into two halves. The anterior part is heart-shaped, constricted dorso-ventrally. It is separated by a T-shaped partition into 3 chambers. Of these the anterior, transverse chamber is partly divided on the median line by a fold of the dorsal wall of the bladder over the vertebral column. The transverse chamber is connected on each side with the 2 posterior lateral chambers by large openings in the ends of the transverse wall. The posterior half of the bladder is without partitions. It is connected with the left lateral chamber only by a small opening. (Jordan & Snyder.)

Known only from Rio Ixtla at Puente de Ixtla, Morelos, Mexico. (Type, No. 6149, L. S. Jr. Univ. Mus. Coll. Jordan & Snyder.)

Istlanus balsanus, JORDAN & SNYDER, Bull. U. S. Fish Com. 1899 (1900), 118, Rio Ixtla, Morelos, Mexico.

Page 211. After *Algansea tincella* (Cuvier & Valenciennes), insert:

337 (b). ALGANSEA LACUSTRIS, Steindachner.

Head 3.67; depth 5; eye 4.75; snout 3.6; interorbital 3. D. III, 7; A. iii, 6; P. 17; V. 9; scales 76–13. Body elongate, strongly compressed behind; caudal peduncle long and slender, its length 5 in head, its depth 10; head pointed, rounded above, greatly increasing in width behind the eyes where the width is half the head's length; mouth slightly oblique, jaws equal; tip of chin slightly thickened; maxillary nearly reaching eye; gape 4 in head; preorbital boat-shaped, concave above, convex below, equal to eye, or 1.6 longer than wide; teeth 4–4, hooked, with compressed crowns. Origin of dorsal midway between anterior border of eye and base of caudal, a little in front of ventrals, whose origin is equally distant between center of eye and base of caudal; height of dorsal 1.75 in head, its base half its height; height of anal 2.14 in head, or twice its base; caudal forked, 1.2 in head, the middle rays not quite half length of longest; ventrals short, 2.17 in head, their tips not reaching vent; pectoral 1.6 in head. Scales firm, half-oval in shape, larger posteriorly; lateral line on middle of side, descending somewhat anteriorly. Color dark brownish gray above, a darker band along middle of side; color below lateral line becoming abruptly lighter gray, merging into silvery on under parts. One example 20 cm. long from Lake Pátzcuaro, Mexico. (Steindachner.)

Algansea lacustris, STEINDACHNER, Einige Fischarten Mex., 10, pl. III, figs. 1–1*b*, 1895, Lake Pátzcuaro, Mexico. (Coll. Princess Theresa von Bayern.)

Page 254. *Orcella*, proposed by us for a subgenus in *Notropis*, is preoccupied by *Orcella*, Gray, 1866, a genus of Cetacea. For our use of it we substitute *Orcula*.

Orcula, JORDAN & EVERMANN, new subgenus in *Notropis* (*orca*).

Page 260. After *Notropis anogenus*, Forbes, insert:

404 (a). NOTROPIS MUSKOKA, Meek.

Head 4; depth 5.5; eye 3.25; snout 3.75; D. 8; scales 36, 10 in series from dorsal to ventral fin; longest dorsal ray 1.34 in head; pectoral 1.5; ventral 2, reaching anal. Teeth 4–4, slightly hooked, grinding surface narrow.

Body rather terete and slender; snout bluntish; mouth small and slightly oblique; lower jaw the shorter, slightly included; posterior end of maxillary scarcely reaching vertical from the front of orbit. Eighteen scales between nape and dorsal fin, the scales in this region being smaller and more crowded than on sides and posterior dorsal region, much resembling *Pimephales notatus* in this respect; lateral line incomplete, not extending beyond the fourth scale on each side. Origin of the first ray of dorsal fin midway between the base of the caudal fin and the tip of the snout; the longest (anterior) dorsal rays nearly three times the length of the posterior ones, the tips of the former extending considerably beyond the tips of the latter when the fin is deflexed. Color olivaceous, darker above, very pale below; a dark band about ⅔ diameter of eye around snout and on side to base of caudal fin: on the snout this band is confined to the upper jaw; between this band and the darker color on the dorsal region is a lighter band of about the same width; a dark vertebral line present, also a similar one from base of anal to caudal fin. In some specimens the lateral line is absent on the first scales and appears at intervals on about 12 scales, but it is occasionally absent altogether. It is less developed in this species than in any other of the genus.

Close to *N. cayuga*, from which it differs in the reduced size of the scales before the dorsal, the more slender body, the sharper snout, the slightly larger and more oblique mouth, and the more incomplete lateral line. It is also a larger fish than *N. cayuga*.

Known only from Gull Lake, near Muskoka Lake, Ontario, where 24 specimens were obtained by Dr. Meek in September, 1899. They vary in length from 1.31 to 2.91 inches. (Named for Muskoka Lake.)

Notropis muskoka, MEEK, Notes on a Collection of Fishes and Amphibians from Muskoka and Gull Lakes: Publication 41, Field Columbian Museum, Zoological Series, Vol. I, No. 17, 308, November, 1899, Gull Lake, Ontario. (Type, No. 2964, Field Columbian Museum. Coll. Dr. Meek.)

Page 264. After *Notropis procne* (Cope), insert:

412 (a). NOTROPIS RASCONIS, Jordan & Snyder.

Head 4; depth 3½; eye 2⅔ in head; snout 3⅓; interorbital space 3; depth of caudal peduncle 2¼; height of dorsal 4⅓ in length; anal 5; length of pectoral 5½; ventral 5½; caudal 3½; D. I, 8; A. I, 8; P. 12; scales 33, 15 between dorsal and occiput, 10 between dorsal and ventral fins. Dorsal outline of body evenly rounded from snout to insertion of dorsal fin, slightly concave from latter point to base of caudal; ventral outline evenly rounded to end of anal base; deepest part of body just anterior to insertion of dorsal; width of body ⅐ of its length. Snout pointed; mouth oblique, lower jaw included; maxillary not quite reaching vertical from anterior margin of orbit. Teeth 4–4, frail and easily detached from the arch, slightly hooked, no evident grinding surface; gill-rakers short and blunt, reduced to slight elevations on lower part of first arch. First ray of dorsal fin longest, last ray much shorter; when the fin is elevated, the posterior margin is straight, when depressed, it is somewhat falcate; anal fin similar in shape; pectoral pointed; tips of ventrals reaching anal; caudal deeply forked, the lobes pointed. Color silvery, a dark lateral band, the width of a scale, extending from tip of snout through eye to base of caudal, where it ends in an elongate, black spot; body above lateral band stippled with black, the dots grouped closely together on top of head, and in a narrow dorsal band extending from occiput to insertion of dorsal, in a sharply defined black line along base of dorsal fin, and also on the edges of the dorsal scales; body below dark band immaculate, except a dusky line along base of anal fin; all the fin rays dusky, especially the partly developed caudal rays, which are noticeably darker than the others.

Notropis rasconis is closely related to *N. nigrotœniatus*, from which it differs in having a more compressed body, a longer snout, larger eye, longer and more pointed fins, and in having the color-band narrower on the body and more marked on the snout. (Jordan & Snyder.)

Known only from the Rio Verde near Rascon, San Luis Potosi, Mexico, where the type (No. 6153, L. S. Jr. Univ. Mus.) was collected by J. O. Snyder.

(Named for Rascon, near which place the type was obtained.)

Notropis rasconis, JORDAN & SNYDER, Bull. U. S. Fish Com. 1899 (1900), 121, Rio Verde, near Rascon, Mexico.

Page 302. Before *Ericymba*, Cope, insert:

123 (a). XYSTROSUS, Jordan & Snyder.

Xystrosus, JORDAN & SNYDER, Bull. U. S. Fish Com. 1899 (1900), 123 (*popoche*).

Body long, compressed; interorbital space low and flat; mouth terminal, oblique; jaws subequal; premaxillaries protractile; no barbel; no pseudobranchiæ; gill-rakers 6+6, long, slender, crowded on arch; teeth 4–4, hooked, grinding surface oblique, grooved; alimentary canal about twice as long as body; peritoneum dusky; lateral line complete, decurved above pectoral; scales 61, evenly distributed over body; fins falcate; dorsal inserted directly above insertion of ventral; caudal deeply forked; anal basis short. Allied to *Notropis;* differing in the long gill-rakers, the small scales, and tho absence of pseudobranchiæ. ξύστρον, (gill-)raker.

498 (a). XYSTROSUS POPOCHE, Jordan & Snyder.

Head 3½; depth 4½; eye 4⅔ in head; snout 3⅗; depth of caudal peduncle 2½; height of dorsal 5 in length; anal 6; length of pectoral 6; ventral 6¼; caudal 4; D. 8; A. 7; P. 16; scales 61, 24 between dorsal and occiput, 16 between dorsal and lateral line. Body long and slender; caudal peduncle deep, compressed; head long, its upper contour straight;

interorbital space broad and flat; eye large; its longitudinal diameter contained 2 times in interorbital space; snout sharp, slightly turned up at end; mouth large, oblique; lower jaw included; lips thin; maxillary not quite extending to orbit; gill-rakers 6+6, on first arch, close together, slender, the longest ½ diameter of orbit. Teeth 4–4, strong, hooked, grinding surface oblique, narrow, grooved, a notch just below the hook; alimentary canal almost twice the length of body; peritoneum dusky. Scales not crowded anteriorly, evenly distributed over body; lateral line shaped like the contour of body, except above pectoral fin, where it is sharply decurved; dorsal inserted directly above ventral, first ray highest, nearly 3 times height of last; when depressed, the fin is falcate; when elevated, its edge is concave; anal similar in shape; caudal deeply forked, the tips sharp; ventrals pointed, not reaching vent; pectoral slightly rounded. Color silvery; darker above, especially on median dorsal area, where a more or less dusky band extends the length of the body; rays of dorsal fin and tips of caudal dusky; lower fins white.

Exact measurements of the only specimen obtained are here given: Length of body in millimeters 92; depth of body, expressed in hundredths of length, 23; depth of caudal peduncle 11½; length of head 28½; width of interorbital space 11½; length of snout 8; diameter of orbit 6; distance from snout to dorsal fin 52; height of longest dorsal rays 20; distance from snout to anal fin 73; height of longest anal rays 17; distance from anal to caudal fin 21; length of caudal fin 25; length of pectoral fin 18; distance from snout to ventral fin 53; length of ventral fin 16. (Jordan & Snyder.)

Only the type known (No. 6151, L. S. Jr. Univ. Mus.) collected by J. O. Snyder in Laguna de Chapala, near Ocotlan, Jalisco, Mexico.

Xystrosus popoche, JORDAN & SNYDER, Bull. U. S. Fish Com. 1899 (1900), 123. Laguna de Chapala, Mexico.

123 (b). FALCULA, Jordan & Snyder.

Falcula, JORDAN & SNYDER, Bull. U. S. Fish Com. 1899 (1900), 124 (*chapalæ*).

Body long, compressed; caudal slender; mouth large, lips thin, premaxillaries protractile; no barbel; teeth in 1 row, 4–4, hooked, grinding surface grooved; gill-rakers few, short, far apart; alimentary canal short; peritoneum silvery; lateral line complete; scales rather small, about 50 in lateral series. Fins high, falcate; dorsal inserted directly over ventrals; anal basis short; first simple rays of dorsal and anal rudimentary and closely adnate to first branched ray; caudal long, deeply notched.

The genus *Falcula* is related to *Notropis*, from which it differs in its small scales and in its very high falcate fins. (*falx*, scythe.)

498 (b). FALCULA CHAPALÆ, Jordan & Snyder.

Head 4; depth 4½; eye 3⅔ in head; snout 3⅔; interorbital space 3⅔; depth of caudal peduncle 9½; height of dorsal 4 in length; anal 5; length of pectoral 4⅘; ventral 5¾; caudal 3¼; D. 8; A. 8; P. 17; scales 50, 19 between dorsal and occiput, 16 between dorsal and ventral fins.

Body long, slender, compressed; snout pointed, its length equal to diameter of orbit or to interorbital space; mouth almost horizontal, its cleft extending to vertical from anterior edge of orbit; lips thin; teeth 4-4, strong, slightly hooked, the hook barely evident on lower tooth; three upper teeth with a grooved grinding surface; gill-rakers 3+7, short, pyramidal, and far apart; alimentary canal short; peritoneum silvery; lateral line complete, decurved to a point in a vertical midway between pectoral and ventral fins, from which it extends in a straight line a little below middle of body to the caudal; fins all very high and pointed; dorsal inserted directly over origin of ventrals, falcate when depressed, its first ray longest; anal similar in shape, inserted at a point $\frac{2}{3}$ the distance from tip of snout to base of caudal; ventrals extending to vent, tip of pectoral reaching ventrals; caudal deeply forked. Color silvery; a narrow, dark median band extending down from occiput to base of caudal; dorsal scales with fine dots which give their edges a dusky color.

One specimen known, careful measurements of which are given: Length of body in millimeters 74; depth of body, expressed in hundredths of length, 25; depth of caudal peduncle 11; length of head 25; width of interorbital space 7; length of snout 7; diameter of orbit 7; distance from snout to dorsal fin 47; height of longest dorsal rays 26; distance from snout to anal fin 67; height of longest anal rays 21; distance from anal to caudal fin 27; length of caudal fin 3½: length of pectoral fin 22; distance from snout to ventral fin 62; length of ventral fin 21. (Jordan & Snyder.)

Only the type known (No. 6152, L. S. Jr. Univ. Mus.) collected by J. O. Snyder in Laguna de Chapala, near Ocotlan, Jalisco, Mexico.

(Named for the type locality.)

Falcula chapalæ, JORDAN & SNYDER, Bull. U. S. Fish Com. 1899 (1900), 124, Laguna de Chapala, Mexico.

Page 311. Before *Agosia nubila* (Girard), insert the following:

514 (a). AGOSIA KLAMATHENSIS, Evermann & Meek.

Head 4; depth 4½; eye 4½ in head; snout 3½; D. I, 8; A. I; 7; scales about 14-78-10 (average, 73 in 49 specimens).

Body robust, subcylindrical, back somewhat elevated; snout rather long, mouth inferior, little oblique, the lower jaw included; maxillary not reaching front of orbit; upper lip without frenum; barbel present, but small. Lateral line incomplete, interrupted in many places, about 30 pores developed. Origin of dorsal fin midway between front of pupil and base of caudal fin; pectoral rather short, reaching about three-fourths the distance to base of ventrals; ventrals reaching vent; anal large, its longest ray 1½ in head; caudal widely forked.

Color in alcohol: Olivaceous, mottled and blotched with darker on back and side; under parts pale; an obscure pale streak from eye to base of caudal fin, below which is a broad dark band; dorsal, pectoral, and caudal dusky; other fins plain; a black blotch at base of caudal.

An examination of 48 specimens shows all the important characters to be fairly constant. The barbel is in a few cases obscure or possibly absent. The number of scales in a transverse line varies from 68 to 78, the average being 73. The lateral line is in all cases incomplete, though in different degrees. Sometimes it is continuous for only 6 or 8 scales, after which there are several interruptions and only 8 to 10 more pores. In others there are 20 to 30 pores in a continuous series.

Close to *A. nubila.*

Upper Klamath Lake, Oregon.

Agosia klamathensis, EVERMANN & MEEK, Bull. U. S. Fish Com. 1897 (Jan. 6, 1898), 74, fig. 5, Pelican Bay, Upper Klamath Lake, Oregon. (Type, No. 48225, U. S. N. M. Coll. Meek & Alexander.)

Page 333. After *Piabucina panamensis*, Gill, insert the following:

552 (a). PIABUCINA FESTÆ, Boulenger.

Head 4⅓; depth 4; eye 4½; snout 4½; interorbital width 9; D. 9; A. 11; scales 28-8; lower jaw longer than snout; teeth 26 above, 32 in external mandibular series; maxillary reaching eye; origin of dorsal equally distant between end of snout and caudal sinus, a little behind base of ventrals; adipose dorsal very small; anal with 8 branched rays; pectoral 1⅓ in head, longer than ventrals; caudal strongly emarginate, scaled on basal half. Very deep olive brown above, whitish below; fins uniformly gray. Length 160 mm. (Boulenger.) From tributary of Lake Pita, Darien; only the type known. (Named for the collector, Dr. Enrico Festa.)

Piabucina festæ, BOULENGER, Bollettino dei Mus. di Zool. ed Anat. Comp. della Univ. de Torino, Vol. XIV, No. 346, April 29, 1899, Rio Sabina, Darien. (Coll. Dr. Enrico Festa.)

Page 367. *Serrivomer beanii* has recently been taken by the *Ingolf* at Stations 12 and 20, lat. 64° 38′ N., long. 32° 37′ W., and lat. 58° 20′ N., long. 40° 48′ W., in Denmark Strait and SSE. of Cape Farewell, in 1,040 and 1,695 fathoms, respectively.

Page 398. After *Lycodontis obscuratus* (Poey), insert:

656 (a). LYCODONTIS JORDANI, Evermann & Marsh.

Head 7 in total length; depth about 14; eye 8 in head; snout 5; gape 2.2; interorbital a little less than snout. Teeth uniserial, strong, sharp, not close set, all entire and without basal lobes; tail considerably longer than rest of body; gill-opening smaller than eye; snout rather pointed, lower jaw the shorter, the mouth capable of being completely closed. Dorsal fin high, much higher than anal; nasal tube long, about 3 in eye.

Color: Tawny-ochraceous, paler below; upper jaw gray; iris blue; longitudinal brown stripes on side of head in front of gill-opening; head and body covered with numerous small, round, white spots, those on head smallest; a series of larger ones along upper part of side, and 1 or 2 irregular series of large ones on side of belly; between these on the middle of side the spots are smaller; dorsal with an irregular series of small white spots along the base, and another series of about 16 much larger, more quadrate spots of same color along edge of fin, some of the spots cutting the border, which is black; anal similarly spotted and with black border. In alcohol the general color is grayish black, yellowish below, the tawny-ochraceous or yellow becoming darker, almost black, and the white spots on body becoming yellowish.

This species seems to be related to *L. obscuratus* (Poey), but differs from it markedly in color. Puerto Rico; only the type known, a specimen 15 inches long collected by the U. S. Fish Commission steamer *Fish Hawk* at Mayagüez, January 20, 1899. (Named for David Starr Jordan.)

Lycodontis jordani, EVERMANN & MARSH, Rept. U. S. Fish Com. 1899 (Dec. 19), 352, Mayagüez, P. R. (Type, No. 49358, U. S. N. M. Coll. Evermann & Marsh.)

Page 447. After *Stolephorus productus* (Poey), insert:

734 (a). STOLEPHORUS GILBERTI, Evermann & Marsh.

Head 3.25; depth 3.4; eye 4; snout 6; maxillary 1.7; mandible 1.7; interorbital 4.9; D. 15; A. 23; pectoral 2.1; ventral 3.5; caudal 1.3; scales 42–9.

Body comparatively deep and strongly compressed, the belly trenchant, without serrations; snout thick, much projecting; maxillary reaching nearly to root of mandible, scarcely serrate; eye moderate; tip of lower jaw reaching vertical from front of eye; distance from lower posterior angle of cheek to vertical from posterior margin of opercle much less than from same point to eye; dorsal inserted far in advance of anal, just behind insertion of ventrals, midway between anterior edge of eye and base of caudal.

Color in spirits: Back light olivaceous with dark punctulations; rest of body below a line from shoulder to upper base of caudal silvery; faint traces of golden behind eye; no lateral band.

This species is very close to *Stolephorus garmani*, Evermann & Marsh, differing chiefly in the much smaller eye, the more uniform color of the back, the somewhat more sharply compressed belly, and the more nearly entire maxillary.

Puerto Rico; only the type, a specimen 4.5 inches long, known. This was collected by the U. S. Fish Commission expedition to Puerto Rico, at Palo Seco, near San Juan, January 13, 1899, associated with *S. productus*. (Named for Dr. Charles Henry Gilbert.)

Stolephorus gilberti, EVERMANN & MARSH, Rept. U. S. Fish Com. 1899 (Dec. 19, 1899), 352, Palo Seco, P. R. (Type, No. 49359, U. S. N. M. Coll. Evermann & Marsh.)

734 (b.) STOLEPHORUS GARMANI, Evermann & Marsh.

Head 3.2; depth 3.3; eye 3.5; snout 5.5; maxillary 1.7; mandible 1.7; interorbital 5; D. 14; A. 23; pectoral 2; ventral 3.5; caudal 1.3; scales 42–9.

Body comparatively deep and strongly compressed; the belly not strongly trenchant, without serrulations; snout thick, much projecting; maxillary reaching nearly to root of mandible, very finely and weakly serrate; eye large; tip of lower jaw reaching vertical from front of eye; distance from lower posterior angle of cheek to vertical from posterior margin of opercle much less than from same point to eye; dorsal inserted far in advance of anal, just behind insertion of ventrals, midway between anterior edge of pupil and base of caudal.

Color in spirits: Back dark near the median line, below this somewhat reddish; rest of body below a line from shoulder to upper base of caudal silvery; some golden on snout and behind eye; no lateral band.

This species has a general resemblance to *Stolephorus productus*, but is unquestionably distinct from it; the anal is much shorter and inserted farther back, the body is deeper, the eye larger, and the snout longer. It is very close to *Stolephorus gilberti*, Evermann & Marsh, differing chiefly in the larger eye, in the color of the back, and the somewhat less sharply compressed belly.

Puerto Rico; only the type, a specimen 4.5 inches long, known. This was collected by the U. S. Fish Commission expedition to Puerto Rico at Puerto Real, January 27, 1899. (Named for Prof. Samuel Garman, of the Museum of Comparative Zoology.)

Stolephorus garmani, EVERMANN & MARSH, Rept. U. S. Fish Com. 1899 (Dec. 19, 1899), 352, Puerto Real, P. R. (Type, No. 49360, U. S. N. M. Coll. Evermann & Marsh.)

Page 497. Before *Salmo gairdneri*, Richardson, insert the following:

780 (k). SALMO CLARKII DECLIVIFRONS, Meek.

(SALMON TROUT OF LAKE SOUTHERLAND.)

Head 3.8; depth 4.6; eye 5.14; snout 4.5; maxillary 1.6; scales 148; D. 10; A. 11; branchiostegals 10; gill-rakers 7 + 10. Body elongate, back elevated, anterior profile much decurved, especially so from nape forward; tip of snout below axis of body; margin of upper lip on a level with lower margin of orbit; gape nearly horizontal, more so than in other trout; maxillary broad, its greatest width 5 in its length, its posterior end reaching beyond eye; dentition strong; posterior margin of dorsal fin straight; tip of second ray reaching middle of last ray in the depressed fin, the last ray 2⅓ in longest ray; pectoral 1.67 in head; ventral 2.25. Color dark blue above and on side to lateral line anteriorly, and to a short distance above lateral line posteriorly, then becoming abruptly silvery; belly nearly white; no spots on head or body, none on any of the fins, except a few on caudal fin; upper margin of lower jaw black, a dark blue patch on cheek, extending obliquely upward and backward to near top of opercle; pectoral, ventrals, and anal yellowish.

The general color of this species much resembles that of the Blue Back of Lake Crescent. It is some darker, has no spots, except on caudal fin, and the upper anterior profile is much more curved.

Professor Elliot gives the following note on this trout:

"This trout is occasionally taken in Lake Southerland, and is called the 'Salmon Trout.' It is easily recognizable, not only by the sharply curved upper outline of the fore part of the body, but also by its quite different style of coloration, resembling, as stated above, somewhat the style of the Blue Back of Lake Crescent. As there is no water connection between these lakes, and Lake Southerland is 75 feet lower than Crescent, and, moreover, the fish of that lake having no communication with the sea, on account of a very high precipitous fall a short distance from its outlet, it can not be supposed that these two forms are in any way identical. Out of a large number of trout taken by me in Lake Southerland, only two or three specimens of this form were procured, and they were all of small size, and I did not understand that it was ever obtained of much greater dimensions. This could not be the fault of the lake, which is exceedingly deep, and nearly 3 miles in length. It is a gamey fish, takes the fly, leaps out of water, and is a good fighter for its size." (Meek.)

Length about 10 inches.

Known only from Southerland Lake, Washington, where 2 or 3 specimens (only 1 of which was preserved) were taken by Professor Elliot in 1898. (*declivus*, steep; *frons*, forehead.)

Salmo clarki declivifrons, MEEK, Notes on a collection of cold-blooded Vertebrates from the Olympic Mountains: Field Columbian Museum Publication 31, Zoological Series. Vol. 1, No. 12, 230, Feb., 1899, Southerland Lake, Washington. (Type, No. 2006, Field Columbian Museum.)

780 (1). SALMO CLARKII JORDANI, Meek.

(SPOTTED TROUT OF LAKE SOUTHERLAND.)

Head 3.86;* depth 4.79; eye 5.89; snout 4.13; maxillary 1.78; scales 146; D. 10; A. 11; branchiostegals 10 or 11. Body elongate, not much compressed; head short, maxillary rather broad, not extending far behind orbit—its greatest width 4½ in its length, in some specimens about 5½, a slight curve downward under the eye; dentition not so strong as in the Speckled Trout of Lake Crescent; gill-rakers rather long, longer than in the Speckled Trout, but less so than in Blue Back of Lake Crescent; pectoral in head, 1.88; ventral 2.24; origin of dorsal midway between tip of snout and base of caudal, or slightly nearer tip of snout; origin of ventrals under first to third dorsal rays; margin of dorsal fin convex, its base 1.32 in longest ray; snout bluntish. Color in alcohol, dark steel-blue above, paler below, becoming nearly white on the belly; back, sides, and head profusely spotted with black; some specimens with black spots on the belly and on all fins; pectorals and ventrals usually without spots; upper half of lower jaw black, red under dentary bones. The life colors are given by Professor Elliot in the following note:

"This beautiful species is exceedingly gamey, takes a fly readily even as late as October, is a great leaper when hooked, and fights *à l'outrance*. In appearance it resembles *Salmo gairdneri crescentis* of the neighboring lake, being fully as brilliantly colored, but can be at once distinguished by its orange or orange-red fins, red on the jaw, and the number and blackness of its spots, and darker back and top of head. In general appearance there is not the slightest similarity between this species and the specimen from Boulder Creek. At no stage of its existence that I have seen, from fingerlings to fish weighing over 4 pounds, is there any silvery luster, but the colors are all bright-hued, some even metallic. It is one of the most active of its tribe, and I have had them leap after taking the fly in such quick succession, and with such rapid dartings about the lake, that it was impossible to imagine where they would next appear. I believe it spawns in the spring, as in the middle of October, when I left Lake Southerland, the eggs of the females we caught were not enlarged, and no indication of the approach of the spawning season." (Meek.)

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*These comparative measurements are the averages of 23 specimens examined by Dr. Meek.

Length 1 to 2 feet.

Known only from Southerland Lake, Washington, where 23 specimens were collected in 1898 by Professor Elliot.

("Named for Dr. D. S. Jordan, president of Stanford University, who, more than anyone else, has studied our Western trout.") (Meek.)

Salmo clarkii jordani, MEEK, Notes on a collection of cold-blooded Vertebrates from the Olympic Mountains: Field Columbian Museum Publication 31, Zoological Series, Vol. I, No. 12, 229, February, 1899, Southerland Lake, Washington. (Type, No. 2012, Field Columbian Museum.)

Page 500. Before *Salmo irideus*, Gibbons, insert the following:

480 (a). SALMO BATHŒCETOR, Meek.

(LONG-HEADED TROUT OF CRESCENT LAKE.)

Head 3.5 to 3.8; depth 5.10 to 5.75; eye 6.75 to 7.60; snout 3.33; maxillary 1.66; scales 150 to 152; gill-rakers 7 or 8 + 11 to 13; branchiostegals 9 to 11; D. 10; A. 11. Body elongate, slender; head much pointed; anterior margin of upper jaw slightly above axis of the body; maxillary very long and very slender, reaching considerably beyond posterior part of the orbit, its greatest width 7 in its length; about 24 teeth on maxillary; teeth on jaws, vomer, and palatines large, the dentition much stronger than in specimens of *Salmo gairdneri crescentis* of same size; mandible very strong; opercle very broad and contains the eye $1\frac{1}{2}$; preoperculum narrow, less than diameter of the eye; gill-rakers very short and thick; last ray of dorsal less than half longest rays, third ray longer than base of fin; when depressed, second and third ray tips reach beyond middle of last dorsal ray; pectoral $1\frac{8}{9}$ in head; ventrals $2\frac{1}{2}$. Color much as in *S. gairdneri crescentis*, except lighter. Head, body, and tail profusely spotted with black spots; ventrals and pectorals dark. No. 2036 (Field Museum) has fewer spots, none on anal and pectoral; anterior part of upper jaw very dark, darker than in the larger specimen. This species differs from *S. gairdneri crescentis* in being much more slender, its back much less elevated, head more slender and pointed, gill-rakers shorter, maxillary straighter, narrower, and longer. The general color pattern is the same, except that this species is less spotted and lighter. No red on the under jaw; the dentition is much stronger in this species than in *S. gairdneri crescentis*. (Meek.)

Prof. D. G. Elliot gives the following interesting note on this trout:

"This is a deep-water fish, keeping always near the bottom. Lake Crescent is of great depth, in some places over 700 feet, and doubtless much more in others not yet ascertained. The present species, unlike other trout, does not come to the surface, as I was informed, at any season of the year, and will not of course take a fly, or indeed a spoon, or any kind of lure. The only way it can be captured is by set-lines sunk within a foot of the bottom, and it seems that there are only a few places in the lake where it can be caught even by this means. The specimens obtained were procured at a depth of about 200 feet. While it is a brightly colored fish, it lacks some of the iridescent hues of *S. gairdneri crescentis,* and consequently is less attractive in appearance. It is known as the long-nose, or long-headed trout." (Meek.)

Length nearly 2 feet.

Known only from Crescent Lake, Washington, where two specimens were obtained in 1898 by Prof. D. G. Elliot.

Salmo bathœcetor, Meek, Notes on a collection of cold-blooded Vertebrates from the Olympic Mountains: Field Columbian Museum Publication 31, Zoological Series, Vol. I, No. 12, 227, February, 1899, Crescent Lake, Washington. (Type, No. 2035, Field Columbian Museum.)

Page 572. *Myctophum gracilis* (Lütken) is reported by Lütken from Denmark Strait, west of Iceland.

Page 583. Before *Yarrella*, Goode & Bean, insert the following:

875 (a). CYCLOTHONE MEGALOPS, Lütken.

Together with a great number of *Cyclothone microdon* captured at station 12—64° 38′ lat. N., 32° 37′ long. W., 1,040 fathoms—there occurred a single specimen of a length of 70 mm., habitually looking much like the said species, but differing by the eyes not being particularly small, and by totally wanting the light glands or "photospheres." It can, therefore, apparently, hardly be referred to the same genus. The dorsal and anal fins are very like those of *C. microdon*, though with the difference that the dorsal fin begins somewhat before the anal fin, while this, on the other hand, ends somewhat farther back than the dorsal fin. Quite black. A somewhat larger specimen (105 mm.) from station 9—64° 18′ lat. N., and 27° long. W., 295 fathoms—is so badly preserved that it gives only the information that the eyes are not small and that both jaws are armed with small teeth directed obliquely backward, with a few longer ones in the foremost part of the lower jaw and the foremost part of the palate or the intermaxillary. The nearer determination of this specimen must be reserved for a future discovery.

It seems evident that these specimens belong to species else unknown, but as the material is so scanty I shall limit myself to the short preliminary notes made above. (Lütken.)

Cyclothone (?) *megalops*, Lütken, Ichth. Results Danish *Ingolf* Exped., Vol. II, 10, 1898, west of Iceland.

Page 617. *Macdonaldia rostrata* was taken in 1895 by the *Ingolf* expedition west of Iceland.

Page 669. After *Characodon variatus*, Bean, insert:

983 (a). CHARACODON ENCAUSTUS, Jordan & Snyder.

Head 4; depth $3\frac{2}{3}$; depth of caudal peduncle 8; eye 3 in head; snout 4; interorbital space $3\frac{1}{2}$; height of dorsal $4\frac{1}{2}$ in length; anal $6\frac{1}{2}$; length of pectoral $5\frac{1}{3}$; ventral $6\frac{1}{2}$; caudal $4\frac{1}{3}$; D. 16; A. 15; scales 35, 13 transverse series counting upward and forward from origin of anal, 9 on caudal peduncle. Body deep, compressed, dorsal outline almost straight from snout to origin of dorsal, concave from the latter point to base of caudal; ventral outline evenly curved from snout to posterior part of base of anal; eye very large, nearer snout than to posterior edge of opercle by a distance equal to longitudinal diameter of pupil; mouth small, its width equal to ⅔ diameter of pupil; maxillary protractile; lower jaw projecting; teeth in 2 series, the outer series small, bicuspid, in a single row, rather firmly attached; inner series minute, in small patches; gill-opening restricted, not extending above base of pectoral fin; gill-rakers slender, equal in length to ½ diameter of pupil. Alimentary canal short; air-bladder large, extending posteriorly to a point above origin of anal; dorsal fin inserted halfway between tip of snout and base of caudal, length of base a little less than height of fin; anal inserted below middle of dorsal, its edge rounded; pectoral extending to base of ventrals; ventrals extending to vent. Scales on body large; upper posterior part of head and a narrow space below and posterior to eye with scales; other parts of head naked; small scales on basal part of caudal fin; a row of large pores above eye and at lower edge of suborbital patch of scales; no lateral line. Color in alcohol light, yellowish olive; 9 short and narrow vertical bands on median part of body, the first above base of pectoral, the ninth at base of caudal; scales on dorsal region of body edged with black dots; upper part of head dark; upper half of orbit black; opercles silvery; dorsal fin with a little dusky; other fins without dark color.

This species somewhat resembles *C. eiseni* in appearance. It differs in having more rays in the dorsal and anal fins, smaller scales, a more compressed body, and less dark color on the body. (Jordan & Snyder.)

Known only from Laguna de Chapala, near Ocotlan, Jalisco, Mexico, where J. O. Snyder collected the type, a female, No. 6163, L. S. Jr. Univ. Mus. (*ενκαυστός*, branded.)

Characodon encaustus, JORDAN & SNYDER, Bull. U. S. Fish Com. 1899 (1900), 126, Laguna de Chapala, Mexico.

Page 685. After *Goodea atripinnis*, Jordan, insert:

313 (a). XENENDUM, Jordan & Snyder.

Xenendum, JORDAN & SNYDER, Bull. U. S. Fish Com. 1899 (1900), 127 (*caliente*).

Body deep, not much compressed; males and females of about the same size. Eye normal; mouth vertical, lower jaw projecting; teeth loosely attached, in 2 series, the first series flat, bicuspid, in 2 or 3 rows on each jaw; the second series minute, in villiform bands, sometimes absent; gill opening not restricted, extending above the pectoral fin a distance equal to the diameter of pupil. Alimentary canal long, with many convolutions; air-bladder present, large. Scales large; no lateral line. Dorsal and anal inserted posteriorly, the one directly over the other, their bases short; anal very slightly modified in male, first rays shorter, edge double-convex—the notch being between smaller and larger groups of rays; ventral fins present; caudal rounded, and not modified in male.

Xenendum differs notably from *Characodon* in having the bicuspid teeth loosely attached and in more than one series. *Characodon* has the bicuspid teeth firmly attached and in a single series. Its actual affinities are with the genus *Goodea*, and it belongs to the subfamily *Goodeinæ*, which has the general characters of the *Pœciliinæ*, but with bifurcate or trifurcate teeth, and no great differences between the sexes. (*ξενός*, strange; *ἐνδόν*, within.)

1008 (b). XENENDUM CALIENTE, Jordan & Snyder.

Head 3¾; depth 2⅗; depth of caudal peduncle 5⅔; eye 4 in head; snout 3⅕; interorbital space 2; height of dorsal 5⅖ in length; anal 6¾; length of pectoral 5; ventral 7⅔; caudal 5; D. 13; A. 14; scales 36, in transverse series counting upward and forward from origin of anal, 14; on caudal peduncle, 9. Body large and thick set, deepest at tip of pectoral; width 4¾ times in length; head pointed; interorbital space broad, slightly convex; length of snout about equal to diameter of orbit; mouth vertical, its width equal to length of snout; maxillary very protractile; teeth loosely attached, in 2 series, those of the first series larger, flat, and notched, in 2 rows on upper jaw, 3 rows on lower, the individual teeth of each row alternating in position with those of the next, those of the second series very minute, in a villiform band; gill-opening not restricted, extending above the pectoral a distance equal to diameter of pupil; gill-rakers long, slender, and close together, 40 on first arch. Alimentary canal long (in one specimen 4½ times the length of body), coiled many times; peritoneum black; genital opening close to base of anal, covered by a thick, notched pad. Dorsal fin inserted posteriorly, rounded, the base short, its length less than height of fin; anal inserted under dorsal, first 5 rays crowded together and shortened; edge of fin double-convex, the notch being between the shorter and longer sets of rays; pectorals and ventrals with rounded edges; caudal evenly rounded; body and head everywhere, except jaws and preorbital area, with scales; no lateral line. Color light olive, growing darker above; medium dorsal area blackish, each scale with a dark, angular band, those of the sixth series below the dorsal darker, making an indistinct, narrow lateral band; all the fins, except ventrals, dusky.

The females differ but slightly from the males. The body is more thick set, the caudal peduncle a little less deep, the fins a little lower, and the anal evenly rounded. The young are somewhat mottled in color.

Xenendum caliente differs from *X. luitpoldii* in having fewer scales in the lateral and transverse series and on the caudal peduncle, and in a similar way from *X. xaliscone*, besides having villiform teeth, which are absent in *X. xaliscone*. (Jordan & Snyder.)

Known only from Rio Verde, near Aguas Calientes, Mexico. (Type, a female, No. 6147, L. S. Jr. Univ. Mus. Coll. J. O. Snyder.)

Xenendum caliente, JORDAN & SNYDER, Bull U. S. Fish Com. 1899 (1900), 127, Rio Verde, near Aguas Calientes, Mexico.

Characodon luitpoldii, Steindachner (p. 2832) belongs to this new genus, and should stand as

1008 (b). XENENDUM LUITPOLDII (Steindachner).

1008 (c). XENENDUM XALISCONE, Jordan & Snyder.

Head 4⅔; depth 3⅓; depth of caudal peduncle 6½; eye 3⅘ in head; snout 3; interorbital space 1⅔; height of dorsal 6½ in length; anal 9; length of pectoral 5¼; ventral 7½; caudal 5; D. 13; A. 14; scales 42, transverse series, counting upward and forward from origin of anal, 17; on caudal peduncle 12. Body thick set, deepest at origin of ventrals, widest at bases of pectorals; caudal peduncle deep and long; head large and pointed; interorbital space broad, slightly convex; mouth vertical, its width equal to length of snout; maxillary very protractile; teeth loosely attached, broader at distal ends than at bases, bicuspid, in two rows on each jaw; no villiform teeth present; gill openings extending above base of pectorals a distance about equal to diameter of pupil; gill-rakers long, flat, very close together, 56 on first arch. Alimentary canal long, in many folds; peritoneum black. Dorsal fin inserted posteriorly, first ray simple, closely attached to second; edge of fin rounded; anal inserted on a vertical passing through the base of fourth dorsal ray, similar to dorsal in shape; pectoral and ventral fins rounded; edge of caudal a little convex; basal fourth with scales. Scales large, everywhere on body and head, except lower jaw and preorbital area; no lateral line. Color plain, dark above, light below, the dark color leaving off rather abruptly on the head along a line passing through lower edge of eye; on the body, along a line passing from lower edge of base of pectoral to caudal, leaving lower one-fifth of caudal peduncle light; faint traces of a dark spot at base of each scale on dorsal region of body; all the fins, except ventrals, dusky. Laguna de Chapala, Mexico.

One male individual was taken. It resembles the female in general appearance. The anal fin is not advanced nor modified into an intromittent organ. Although it is injured, it shows that the first 5 or 6 rays were close together and shortened.

Xenendum xaliscone differs from *X. caliente* in not having villiform teeth, in having more scales in the lateral and transverse series, and on the caudal peduncle. It differs from *X. luitpoldii* (Steindachner), which is the third known species of the genus, in having a much longer snout, a more pointed head, and in not having villiform teeth. (Jordan & Snyder.)

Known only from Laguna de Chapala, near Ocotlan, Jalisco, Mexico. (Type, a female. No. 6148, L. S. Jr. Univ. Mus. Coll. J. O. Snyder.)

(Name from Jalisco, the type locality.)

Xenendum xaliscone, JORDAN & SNYDER, Bull. U. S. Fish Com. 1899 (1900), 129, Laguna de Chapala, Mexico.

Page 698. Before *Mollienisia*, Le Sueur, insert:

1037 (a). POECILIA LIMANTOURI, Jordan & Snyder.

Head 3½ in length; depth 3; depth of caudal peduncle 4⅗; eye 3½ in head; snout 3; interorbital space 2; height of dorsal 5½ in length; anal 4½; length of pectoral 4½; ventral 6; caudal 3½; D. 9; A. 8; scales 26–9, 8 on caudal peduncle. Body rather deep and compressed; dorsal outline angular, its highest point at insertion of dorsal; lowest point of ventral outline at base of ventrals. Head pointed, interorbital space wide and flat; eye large, nearer tip of snout than to posterior edge of opercle by a distance equal to diameter of pupil; mouth very oblique, its width equal to 2 times diameter of pupil; premaxillaries protractile; distal end of maxillary visible; lower jaw projecting; teeth in two series on each jaw, the outer series in a single row, small, pointed, loosely attached; second series scarcely discernible, in bands; gill-openings extending above base of pectoral a distance equal to ½ diameter of orbit; gill-rakers on first arch 20, small and slender; alimentary canal very long and slender. Body and entire head, except preorbital area, lips, and lower jaw, covered with large scales; 3 rows of scales on base of caudal; small scales extending on inter-radial membranes of caudal, a distance beyond the basal scales about equal to diameter of the eye. Dorsal fin inserted halfway between base of caudal and anterior edge of pupil, its base contained 6⅔ times in length of head and body, its height 5⅔, the last rays a little higher than the first; anal advanced close to base of ventrals, the first and second rays short, closely attached to the next, third ray greatly enlarged and lengthened, a loosely attached ovate, fleshy pad near its tip; fourth and fifth rays slender, as long as third; tips of third and fifth rays bent toward that of the fourth; sixth to eighth rays about ½ as long as third; caudal rounded, its length contained 3⅓ times in head and body; pectoral rounded, the length contained 1¼ times in head; ventrals pointed, extending to middle of longest anal ray. Color in alcohol, light yellowish olive, much lighter on breast and ventral part of head; posterior edges of scales dark; lower jaw, preorbital area, upper part of head, and a narrow, median dorsal stripe, dark; basal ⅗ of dorsal fin black, distal part of fin white, the boundary between the white and black more definite on the anterior than on posterior part of fin; basal ⅔ of caudal dusky, distal part without color.

Other male examples have only a few small dark spots on dorsal and caudal. The females have the body more elongate than the males, the depth of the caudal peduncle 5⅔ in length. The dorsal fin is inserted in advance of the anal, its origin above anal opening, the first rays highest. The ventrals extend to the posterior edge of the vent, but do not reach the anal. The dorsal and caudal have a little dusky coloring.

Lack of material for comparison prevents our commenting on the probable affinities between this and other species of the genus. (Jordan & Snyder.)

Known only from Rio Tamesoe, near Tampico, Tamaulipas, Mexico, where several specimens were collected January 12, 1899, by Mr. Snyder. (Type, a female, No. 6165, L. S. Jr. Univ. Mus.)

(Named for Jose Limantour, the accomplished minister of the "Hacienda" in Mexico.)

Pœcilia limantouri, JORDAN & SNYDER, Bull. U. S. Fish Com. 1899 (1900), 129, Rio Tamesoe, near Tampico, Mexico.

Page 702. Before *Xiphophorus guntheri*, Jordan & Evermann, insert:

1043 (a). XIPHOPHORUS MONTEZUMÆ, Jordan & Snyder.

Head 4⅕; depth 3; depth of caudal peduncle 4⅔; eye 3¼ in head; snout 3¼; interorbital space 2; height of dorsal 3½ in length; anal 5; length of pectoral $4\frac{1}{5}$; ventral $4\frac{1}{2}$; upper rays of caudal $3\frac{1}{3}$, lower rays $1\frac{1}{10}$; D. 13; A. 7; scales 29–9, 7 on caudal peduncle. Body deep, compressed, dorsal contour arched, its highest point at insertion of dorsal; caudal peduncle narrow and very deep; head small, pointed; interorbital space wide, slightly convex; eye large, a little nearer tip of snout than to posterior edge of opercle; mouth vertical; teeth in two series, the first in a single row, minute, flat, and pointed, the second in a villiform band, much smaller and narrower than the first, brownish-colored, strongly curved backward; gill opening extending above base of pectoral a distance equal to diameter of pupil; gill-rakers on first arch 19, slender, the length of longest equal to half diameter of eye; intestinal tract slender and long; peritoneum black; scales on head and body large, 1 large, round scale on interorbital space, followed by 2, a row of 11 from the latter to first dorsal ray; 3 rows on base of caudal fin; base of dorsal fin short, $4\frac{1}{6}$ in body, first ray shortest, the others graduated to the eighth, which is longest; ninth, tenth, and eleventh shorter; twelfth and thirteenth longer; the abrupt shortening of the ninth, tenth, and eleventh rays makes a notch in the outline of fin; anal advanced, its origin under third ray of dorsal; first ray greatly enlarged and lengthened; second and third equally lengthened, but more slender, these three with their connecting membranes forming a half tube with a pointed end; other rays half the length of first; upper lobe of caudal rounded, 5 lower rays forming a very long, blunt appendage; ventrals pointed, extending almost to tip of anal; pectoral sharply rounded; color yellowish olive, marked with black; during life there were 4 narrow, longitudinal orange bands, each extending along a row of scales on body; top of head, and a median dorsal band extending to caudal, dusky; a narrow, dusky band on edge of lower jaw; 2 short, vertical bands on snout; 6 upper rows of scales edged with black or dusky; a few black spots irregularly arranged on body above ventrals; a large black spot at base of caudal, its color extending along upper edge of prolongation; a dark line extending along lower edge of caudal peduncle to end of lower caudal rays, the caudal extension with a light central portion bordered with black, the lower border wider; underpart of head and belly without dark color; dorsal fin with black dots and lines; pectorals, ventrals, and anal plain.

Considerable variation in shape of fins and in color is shown among other male examples (cotypes, males and females, No. 6146, L. S. Jr. Univ. Mus.). In some the fins are low and short, the caudal ornament represented only by a slight lengthening of the lower rays. Among individuals, apparently fully grown, there is every graduation from the undeveloped to the very long caudal extension. In every case the scales are conspicuously dark edged. In some examples black spots, crowded together, form a more or less dark line from eye to caudal, while below this line are large, irregular black blotches. Others have no black spots, and the dark caudal patch has almost disappeared.

The females have the fins low or short, and without special modifications, the posterior edge of caudal S-shaped, the upper part rounded, the lower pointed, the scales dark edged; a narrow, indefinite, dark color band usually present along median line of sides; the dark caudal patch rarely absent. Fully grown males are scarce, a large catch consisting mostly of females and young.

Xiphophorus montezumæ is distinguished from the other known species of the genus by having 7 anal rays, the scales with conspicuous dark edges, a large brown caudal spot, and the caudal appendage not sword-shaped, but with its end enlarged and blunt. (Jordan & Snyder.)

Known only from Rio Verde, near Rascon, San Luis Potosi, Mexico. (Type, a male, No. 6145, L. S. Jr. Univ. Mus. Coll. J. O. Snyder.)

Xiphophorus montezumæ, JORDAN & SNYDER, Bull. U. S. Fish Com. 1899 (1900), 131, Rio Verde, near Rascon, Mexico.

Page 702. The recent studies of the eyes of American blind fishes by Dr. C. H. Eigenmann have shown that the species occurring in the caves of southwestern Missouri which has usually been identified as *Typhlichthys subterraneus*, Girard, but which Dr. Eigenmann described as a new species under the name *Typhlichthys rosæ* (p. 2835), has had an ancestry quite distinct from that of *Typhlichthys*. It therefore is generically distinct from *Typhlichthys*, and has been made the type of the new genus *Troglichthys* by Eigenmann.

322 (a). TROGLICHTHYS, Eigenmann.

Troglichthys, EIGENMANN, Science, N. S., Vol. IX, No. 217, p. 282, Feb. 24, 1899 (*rosæ*).

Scleral cartilages present, pigment in the pigment epithelium; vitreal cavity obliterated, no hyaloid membrane; pupil closed, some of the eye muscles developed; no outer reticular layer; outer and inner nuclear layers merged into one; eye in adult not connected with the brain; pigment epithelium developed on the distal face of the eye, rarely over the sides and back; no cones; nuclear layers mere vestiges; ganglionic layer restricted to the anterior face of the eye just within the pigmented epithelium. Maximum diameter of eye about 85μ. No ventral fins. (*Τρώγλη*, cavern; *ἰχθύς*, fish.)

The genera and species of Amblyopsidæ may be determined by the following key (from Eigenmann), based largely on the character of the eyes:

a. Vitreous body and lens normal, the eye functional; no scleral cartilages; eye permanently connected with the brain by the optic nerve; eye muscles normal; no optic fiber layer. Minimum diameter of the eye 0.700μ. No ventral fins. CHOLOGASTER, 321.

  b. Eye in adult more than 1 mm. in longitudinal diameter; lens over 0.5 mm. in diameter; retina very simple, its maximum thickness 83.5μ in the old; the outer and inner nuclear layers consisting of a single series of cells each; the ganglionic layer of isolated cells. Maximum thickness of the outer nuclear layer 5μ, of the inner nuclear layer 8μ. CORNUTUS, 1044.

  bb. Eye in adult less than 1 mm. in longitudinal diameter; lens less than 4 mm.; outer nuclear layer composed of at least 2 layers of cells; inner nuclear layer of at least 3 layers of cells, the former at least 10μ thick, the latter at least 18μ.

    c. Pigment epithelium 65μ thick in the middle-aged, 102μ in the old. PAPILLIFERUS, 1046.

    cc. Pigment 49μ thick in the middle-aged, 74μ in the old; 24 to 30 per cent thinner than in papilliferus; eye smaller. AGASSIZII, 1045.

aa. The eye a vestige, not functional; vitreous body and lens mere vestiges, the eye collapsed, the inner faces of the retina in contact. Maximum diameter of eye about 200μ.

d. No scleral cartilages, no pigment in the pigment epithelium; a minute vitreal cavity; hyaloid membrane with blood vessels; pupil not closed; outer nuclear, outer reticular, inner nuclear, inner reticular, ganglionic, and pigment epithelial layers differentiated; cones probably none; no eye muscles. Maximum diameter of eye 180μ. Eye probably connected with brain throughout life. TYPHLICHTHYS, 322.

dd. Scleral cartilages present; pigment in the pigment epithelium; vitreal cavity obliterated, no hyaloid membrane; pupil closed; some of the eye muscles developed; no outer reticular layer; outer and inner nuclear layers merged into one. Eye in adult not connected with the brain.

e. Pigment epithelium well developed; cones well developed; ganglionic cells forming a funnel-shaped mass through the center of the eye; pigmented epithelium over the front of the eye without pigment. Maximum diameter of eye about 200μ. Ventral fins present. AMBLYOPSIS, 323.

ee. Pigment epithelium developed over the distal face of the eye, rarely over the sides and back; no cones; nuclear layers mere vestiges; the ganglionic layer restricted to the anterior face of the eye, just within the pigmented epithelium. Maximum diameter of the eye about 85μ. No ventral fins. TROGLICHTHYS, 322 (a).

Page 744. To the synonymy of *Eucalia inconstans* (Kirtland), add the following:

Gasterosteus gymnetes, DAWSON, Canadian Naturalist, Vol. IV, No. 5, October, 1859, 321-324, figs. 1-3, Montreal, Canada. (Coll. Prof. J. W. Dawson.)

Page 789. Recent investigations made by Dr. Jordan in certain fresh-water streams and lakes of Mexico resulted in the discovery of several new species of Atherinidæ and new facts regarding other species:

1157. ESLOPSARUM JORDANI (Woolman).

Locality, Rio Verde, Aguas Calientes, Mexico.

Two specimens of *Eslopsarum jordani* were collected, together with numerous individuals of *E. arge*. *Chirostoma breve*, Steindachner, is probably identical with *E. jordani*, as already supposed by us.

An examination of a number of species of *Eslopsarum* and of *Chirostoma* shows that the number of vertebræ, in addition to the character of the scales, furnishes a distinguishing generic feature.

Species.	Vertebræ.
Eslopsarum jordani	38
arge	37
Chirostoma humboldtianum	44
chapalæ	45
promelas	45
diazi	44
crystallinum	44
lermæ	44
ocotlane	44

Chirostoma contains two very marked types of species. The one represented by the typical species, *Chirostoma humboldtianum*, has the flesh firm and opaque in life. The other (*Lethostole*), typified by *Chirostoma estor*, has the flesh thin, translucent, and very pale. There are correlated differences in the firmness of the bones and scales, but thus far we have found no tangible character on which to separate *Lethostole* as a genus from *Chirostoma*. The known species of *Lethostole* are *estor, album, chapalæ, grandocule, promelas, diazi, crystallinum, lermæ*, and *ocotlane*.

1157 (a). ESLOPSARUM ARGE, Jordan & Snyder.

Head 4¼; depth 4⅓; depth of caudal peduncle 2¾ in head; eye 3⅔; snout 3; interorbital space 3⅓; height of spinous dorsal 3⅓; soft dorsal 2; anal 2; length of pectoral 1½; ventrals 2½; caudal 1⅕; D. IV–8; A. 15; P. 13; scales 40–11, 5 between the dorsals. Body rather thickset, its deepest part just anterior to base of ventrals; width of body equal to distance from posterior edge of orbit to tip of snout; eye nearer to tip of snout than to posterior edge of opercle by a distance equal to diameter of pupil; interorbital space convex; width of preorbital area equal to diameter of pupil; tip of lower jaw projecting beyond that of upper; mouth large, oblique; lips not much thickened posteriorly, the lower not distinctly folded over the upper at their angle; maxillary extending posteriorly to a perpendicular passing through anterior edge of orbit, its distal end below the level of eye; teeth large, sharp, projecting backwards, in 2 definite rows on each jaw, none on vomer or palatines; gill-rakers on first arch 14, long and slender; air-bladder extending posteriorly to a point a little past insertion of anal; peritoneum black; vertebræ 37. Lateral line represented on the fifth row of scales below the dorsal by a series of partly developed pores; scales large, entire, covering head and body except snout, lower jaw, preorbital area, and a small space around base of pectoral; small scales extending for a short distance on interradial membranes of caudal; first 3 dorsal spines of about the same height, the fourth shorter; first dorsal ray longest, the others gradually shorter; edge of fin straight; anal inserted on a perpendicular, passing halfway between dorsals, its first ray longest; edge of fin slightly concave; caudal notched, the tips and notch rounded, extending to bases of ventrals; ventrals falling short of vent a distance equal to diameter of orbit. Color in life, translucent; a silvery lateral band with its upper edge dark, extending from upper part of base of pectoral to base of caudal, the band less distinct in the region of the pectoral fin; scales of back edged with fine, dark specks; snout, lower jaw, top of head, and upper part of eye dusky; dorsal and caudal fins with a little dusky coloring.

Specimens of *E. arge* were caught in the same seine-haul with *E. jordani*. The former species differs from the latter in having a thicker body, a longer snout, a larger and less oblique mouth, a larger eye, and a wider color band.

In the drawing accompanying the original description of *Eslopsarum jordani* the mouth is wrongly represented. Of the specimens examined, including some of the types, the mouth is much like that of *Chirostoma humboldtianum*. The cleft is not straight in outline. The lower lip folds over the upper at their union. (Jordan & Snyder.) (*arge*, silvery.)

Known only from the Rio Verde, near Aguas Calientes, Mexico. (Type, No. 6154, L. S. Jr. Univ. Mus. Coll. J. O. Snyder.)

Eslopsarum arge, JORDAN & SNYDER, Bull. U. S. Fish Com. 1899 (1900), 133, Rio Verde, near Aguas Calientes, Mexico.

1157 (b). CHIROSTOMA CHAPALÆ, Jordan & Snyder.

Head 4; depth $5\frac{1}{2}$; depth of caudal peduncle 3 in head; eye $3\frac{2}{3}$; snout $3\frac{1}{5}$; interorbital space 4; height of spinous dorsal 3; soft dorsal $1\frac{3}{4}$; anal $1\frac{3}{5}$; length of pectoral $1\frac{1}{4}$; ventrals $2\frac{1}{5}$; caudal $\frac{9}{10}$; D. IV–10; A. 20; pectoral 14; scales 47–13, 6 between dorsals. Body slender, compressed, its deepest part below first dorsal; eye large, nearer tip of snout than to posterior edge of opercle by a distance equal to $1\frac{1}{2}$ times the diameter of pupil; interorbital space convex, its width about equal to diameter of pupil or to preorbital area; symphysis of lower jaw projecting a little beyond tip of upper, the lips meeting; mouth oblique, lips thickened posteriorly, the lower folding over the upper at their union; angle of mouth on a level with center of pupil; maxillary nearly vertical, its distal end in advance of a vertical from anterior edge of orbit, a distance equal to $\frac{2}{3}$ the diameter of pupil. Teeth minute, in bands, not arranged in definite rows; no teeth on vomer or palatines; gill-rakers on first arch 30, very slender, the length of longest equal to diameter of orbit; peritoneum black; air-bladder very large, extending posteriorly to a point above middle of anal fin; vertebræ 45. A well-defined lateral line extending along the body on the eighth row of scales below the first dorsal. Scales large, crenate, not notably reduced in size nor closely crowded together on any part of the body; those on post-occipital region and anterior to pectorals small; scales extending on basal $\frac{2}{3}$ of inter-radial membranes of caudal; lower jaw, snout, and preorbital space naked; first 2 spines of dorsal highest, the following 2 a little shorter; first ray of second dorsal highest, others gradually shorter; anal inserted a little anterior to a perpendicular passing halfway between the origins of dorsals, first ray longest, others successively shorter; when the fin is elevated, its edge is concave; caudal deeply forked, the tips pointed; pectoral notably pointed, extending past base of ventral a distance equal to diameter of orbit; ventrals extending to vent. Color in life, translucent; a silvery lateral band 1 scale wide, bright, and distinct posteriorly, becoming indistinct anteriorly; upper edge of lateral band with dusky; scales on dorsal part of body edged with dark dots; upper and lower jaws with dark dots; upper part of eye black, the dark, pigmented arachnoid showing through the thin skull. (Jordan & Snyder.)

C. chapalæ is closely related to *C. grandocule*, Steindachner. It differs in having a smaller eye and larger scales. The former has 44 to 51 scales in the lateral series, and 12 to 14 in a transverse series, while *C. grandocule* has 60 to 62 scales in the lateral series and 15 or 16 in a transverse series.

Known only from Laguna de Chapala, near Ocotlan, Jalisco, Mexico. (Type, No. 6165, L. S. Jr. Univ. Mus. Coll. J. O. Snyder.)

Chirostoma chapalæ, JORDAN & SNYDER, Bull. U. S. Fish Com. 1899 (1900), 135, Laguna de Chapala, Mexico.

1157 (c). CHIROSTOMA PROMELAS, Jordan & Snyder.

Head 3⅖; depth 4⅗; depth of caudal peduncle 3⅓ in head; eye 5⅔; snout 2½; interorbital space 4½; height of spinous dorsal 3⅗; soft dorsal 2⅖; anal 2; length of pectoral 1⅗; ventral 2½; caudal 1½; D. IV–11; A. 19; pectoral 15; scales 53–16, 9 between dorsals. Head slender, triangular; eye small, nearer tip of snout than to edge of opercle by a distance equal to half diameter of pupil; width of preorbital area somewhat greater than diameter of pupil; interorbital space slightly convex; snout pointed; upper jaw projecting a little beyond the lower; cleft of mouth almost horizontal; lips enlarged posteriorly, the lower lip folding over the upper at their junction; angle of mouth on a level with lower part of pupil; maxillary almost vertical in position, its distal end not extending backward as far as anterior edge of orbit; teeth large, curved inward, not arranged in definite rows; none on vomer or palatines; vertebræ 45. A tolerably well-defined lateral line extending along the body about 8 scales below the first dorsal, the pores absent on some of the scales; scales crenate, largest along lateral color band; a post-occipital patch of minute, closely-crowded scales extending backward nearly to a line connecting bases of pectorals; a narrow band of similar scales just posterior to gill-openings, and on base of caudal, the latter extending on inter-radial membranes half their length; scales between dorsals not abruptly smaller than those near by, nor crowded closely together; head with scales except on snout, preorbital region, and on lower jaw; first 3 spines of dorsal nearly equal in length, the fourth a little shorter; first dorsal ray longest, the others gradually shorter; anal inserted on a perpendicular passing midway between dorsals, first ray longest, others successively shorter; edge of fin slightly concave; pectoral pointed; extending beyond base of ventrals a distance equal to diameter of pupil; ventrals not quite reaching vent. Color in alcohol, yellowish olive; a distinct silvery lateral band, the light color of which is underlaid with dark pigment, extending from upper part of base of pectoral to caudal, wider and brighter in color between dorsal and anal, growing narrower on caudal peduncle, widening at its end; scales of upper part of body with dusky coloring on their edges; dorsals, pectoral, and caudal with dark color; eye dusky above, a dark band on interorbital space; snout and jaws black.

Chirostoma promelas is distinguishable from other known species of the genus by the projecting upper jaw and the black snout.

One specimen other than the type was obtained. In it the projection of the upper jaw is more pronounced than in the type. The gill-rakers and abdominal viscera had been removed from both. (Jordan & Snyder.)

Known only from Guadalajara, Jalisco, Mexico, where 2 specimens were obtained in the market. (Type, No. 6156, L. S. Jr. Univ. Mus. Coll. J. O. Snyder.) (*πρό*, before; *μελάς*, black.)

Chirostoma promelas, JORDAN & SNYDER, Bull. U. S. Fish Com. 1899 (1900), 136, Guadalajara, Mexico.

1157 (d). **CHIROSTOMA DIAZI,** Jordan & Snyder.

Head $3\frac{1}{3}$; depth 5; depth of caudal peduncle $3\frac{1}{4}$ in head; eye $5\frac{1}{3}$; snout $2\frac{1}{2}$; interorbital space $4\frac{1}{2}$; height of spinous dorsal $4\frac{2}{5}$; soft dorsal $2\frac{1}{2}$; anal $2\frac{2}{5}$; length of pectoral $1\frac{3}{5}$; ventral 3; caudal $1\frac{2}{5}$; D. V–11; A. 20; P. 15; scales 69–20, 22 between dorsals. Body long, deeper and more compressed than that of *C. humboldtianum;* head large, its dorsal contour straight from tip of snout to occiput; viewed from above, the head is much compressed, the upper jaw is sharply pointed and included by the lower; interorbital space slightly convex; eye nearer tip of snout than to edge of opercle by a distance equal to diameter of pupil; preorbital area a little wider than diameter of orbit; mouth oblique, its cleft extending to a horizontal from lower edge of orbit; lips thickened posteriorly, the lower forming a fold across the upper at angle of mouth; lower jaw projecting, the teeth just passing the edge of the upper; maxillary extending to a vertical from anterior edge of orbit, its distal end angular; teeth large anteriorly, growing gradually smaller posteriorly, canine-like, sharp, projecting backward, not arranged in definite rows, none on vomer or palatines; vertebræ 44. Scales crenate, larger in region of lateral color band, growing smaller dorsally and ventrally, abruptly smaller and closely crowded together in a region anterior to the pectoral fin, extending from the isthmus to the occiput, also between the dorsal fins and along bases of dorsals, anal and caudal; inter-radial membranes of the latter with scales extending $\frac{2}{3}$ its length; head with scales except on jaws, upper part of snout, and on preorbital area; two anterior spines of dorsal longest, others a little shorter; first dorsal ray longest, others gradually shorter; anal similar to soft dorsal in shape, except that its base is much longer; insertion of anal on a perpendicular passing halfway between dorsals; caudal deeply forked, the lobes pointed; pectoral sharp, extending past base of ventrals a distance equal to diameter of orbit; edge of pectoral, when extended, straight. Body, during life, translucent; in alcohol, greenish olive; a silvery lateral band, in which the silver is not underlaid with black pigment, extending from axil to base of caudal; dorsal scales narrowly edged with dusky; upper part of eye dark. Jalisco, Mexico.

Our specimens are all from the market at Guadalajara. The gill-arches and viscera had been removed. The flesh is somewhat shrunken, which probably causes the teeth to appear more prominent than in life.

Chirostoma diazi may be easily distinguished from the other known species of the genus by the small scales crowded closely together between the dorsal fins. (Jordan & Snyder.)

Known only from the market at Guadalajara, Jalisco, Mexico. (Type, No. 6157, L. S. Jr. Univ. Mus. Coll. J. O. Snyder.)

(Named for Porfirio Diaz, the honored President of the Republic of Mexico, in recognition of his interest in the progress of science.)

Chirostoma diazi, JORDAN & SNYDER, Bull. U. S. Fish Com. 1899 (1900), 137, Guadalajara, Mexico.

1157 (e). CHIROSTOMA CRYSTALLINUM, Jordan & Snyder.

Head 3¼; depth 4¾; depth of caudal peduncle 3½ in head; eye 5¾; snout 2⅗; interorbital space 4½; height of spinous dorsal 4⅕; soft dorsal 2½; anal 2¼; length of pectoral 1⅘; ventral 2¾; caudal 1¾; D. V–13; A. 24; P. 15; scales 56–18, 10 between dorsals. Body deepest above ventrals, widest at insertion of pectorals; head long and pointed, its upper contour straight; snout, viewed from above, sharply pointed, the lower jaw projecting beyond upper a distance equal to not more than half diameter of orbit; eye nearer tip of snout than to posterior edge of opercle a distance equal to diameter of pupil; mouth oblique, the cleft extending downward to a level with lower edge of pupil; lips thickened posteriorly, the lower folding over the upper at angle of mouth; teeth minute, in wide patches, not arranged in definite rows, on upper and lower jaws; no teeth on vomer or palatines; gill-rakers on first arch 27, slender, the length of longest equal to diameter of pupil; vertebræ 44. An indefinite lateral line extending along the body about 9 scales below first dorsal, the pores absent on many of the scales; scales crenate, largest along color-band, growing smaller above and below, much smaller and closely crowded on the body anterior to the pectoral fin, from the isthmus to the occiput; a few small scales at upper end of opercle, along bases of fins, and on the inter-radial membranes of caudal for half its length; scales between dorsals large and not crowded together; lower jaw and upper part of snout naked; first 3 spines of dorsal about the same length, reaching, when depressed, to ⅓ their length of insertion of soft dorsal; first dorsal ray longest, others gradually shorter; anal inserted on a perpendicular passing through a point half way between origins of dorsals, base much longer than that of dorsal; first dorsal ray longest, others gradually shorter to middle of fin, all remaining rays of about the same height; caudal deeply forked, the tips rounded; pectoral pointed, extending a little past base of ventrals; tips of ventrals extending to vent. Body, during life, translucent, with a slightly bluish tinge; in alcohol, yellowish; upper scales with dusky edges; top of head dusky; upper part of eye dark; fins, except ventrals and anal, with a little dusky color; a silvery color band extending from upper part of pectoral base to caudal, narrower on caudal, widening at base of caudal.

C. crystallinum closely resembles *C. ocotlane* in general appearance. The much shorter lower jaw and the smaller eye of *C. crystallinum* are at once distinguishing characters. Guadalajara and Laguna de Chapala, Mexico. (Jordan & Snyder.)

Two specimens from the Guadalajara market are shrunken so that the orbit is larger, and the teeth more evident than in those taken at Ocotlan.

Known from Laguna de Chapala, near Ocotlan, Jalisco, Mexico, and the market at Guadalajara. (Type, No. 6158, L. S. Jr. Univ. Mus. Coll. J. O. Snyder.)

Chirostoma crystallinum, JORDAN & SNYDER, Bull. U. S. Fish Com. 1899 (1900), 139, Laguna de Chapala, Mexico.

1157 (f). CHIROSTOMA LERMÆ, Jordan & Snyder.

Head $3\frac{1}{6}$; depth $5\frac{1}{3}$; depth of caudal peduncle $3\frac{2}{3}$ in head; eye $5\frac{1}{2}$; snout $2\frac{2}{3}$; interorbital space $5\frac{1}{2}$; height of spinous dorsal $4\frac{1}{2}$; soft dorsal $2\frac{1}{2}$; anal $2\frac{1}{6}$; length of pectoral $1\frac{2}{3}$; ventrals 3; caudal $1\frac{3}{5}$; D. IV–11; A. 20; scales 58–20, 11 between dorsals. Body slender, deepest part in region of ventrals; caudal peduncle narrow; snout long and pointed; lower jaw slightly projecting, but not enough to include the upper; eye large, nearer tip of snout than to posterior edge of opercle, a distance equal to diameter of orbit, or to width of preorbital space; cleft of mouth extending to a horizontal through lower edge of orbit; lower lip folded over the upper at their union; maxillary extending posteriorly almost to a perpendicular from anterior edge of orbit, its distal end angular; teeth large and strong, curved backward and inward, arranged in 2 definite rows, those of the inner row of the upper jaw and of the outer row of the lower jaw larger, none on vomer or palatines; vertebræ 44. An indefinite lateral line extending along body about 10 scales below first dorsal, the pores absent on many of the scales; scales crenate, largest along the lateral color-band, much smaller between occiput and first dorsal, those immediately posterior to occiput, minute and very closely crowded; a narrow edging of similar scales along the gill-openings, extending ventrally to the isthmus; scales between dorsals not much reduced in size or crowded together; basal half of inter-radial membranes of caudal with scales; first 2 spines of dorsal longest, third shorter, fourth about $\frac{2}{3}$ as long as the first; first dorsal ray longest, others gradually shorter, edge of fin straight; insertion of anal on a perpendicular passing through a point half way between origins of dorsals, first ray longest, others successively shorter, last ray one-third the length of first; caudal deeply forked, its tips rather pointed; pectoral pointed, extending beyond origin of ventrals a distance equal to diameter of pupil; ventrals reaching vent. Color in alcohol, light olive, a silvery lateral band equal to a scale in width extending from upper part of base of pectoral to base of caudal; edges of upper scales dusky; a little dark color on dorsals, caudal, and pectoral; upper and lower jaws and top of head with minute dark dots; upper part of eye dark.

C. lermæ closely resembles *C. crystallinum*. It differs markedly in having large teeth, which are arranged in two rows, a shorter lower jaw and a larger eye. Jalisco, Mexico. (Jordan & Snyder.)

Our specimens of *C. lermæ* are all from the market of Guadalajara. The gill-arches and viscera had been removed and the bodies were somewhat shrunken. The specimens are said to have come from Laguna de Chapala, Jalisco, Mexico. (Type, No. 6159, L. S. Jr. Univ. Mus. Coll. J. O. Snyder.)

Chirostoma lermæ, JORDAN & SNYDER, Bull. U. S. Fish Com. 1899 (1900), 140, Guadalajara, Mexico.

1157 (g). CHIROSTOMA OCOTLANÆ, Jordan & Snyder.

Head $3\frac{1}{3}$; depth $4\frac{1}{2}$; depth of caudal peduncle $3\frac{1}{4}$ in head; eye $4\frac{1}{3}$; snout $2\frac{3}{5}$; interorbital space 5; height of spinous dorsal $3\frac{1}{2}$; soft dorsal $2\frac{1}{6}$; anal 2; length of pectoral $1\frac{3}{5}$; ventral $2\frac{1}{2}$; caudal $1\frac{1}{2}$; D. V–12; A. 20; scales 54–19, 11 between dorsals. Body long, rather slender, deepest above ventrals; head long, pointed, its dorsal contour straight from tip of snout to a point a little posterior to the eye, where it curves upward; interorbital space flat; eye high up, nearer tip of snout than edge of opercle by a distance about equal to diameter of pupil; width of preorbital space equal to diameter of pupil; mouth oblique, the cleft extending downward to a point opposite lower edge of pupil; lips growing more fleshy posteriorly, the lower forming a fold across the upper at their junction; distal end of maxillary angular, extending almost to a vertical from anterior edge of orbit; lower jaw very long, projecting beyond upper a distance equal to diameter of pupil; viewed from above, both jaws are a little more pointed than are those of *C. estor* or of *C. humboldtianum*. Teeth on jaws in bands, minute, projecting backward; no teeth on vomer or palatines; gill-rakers slender, close together. length of longest equal to diameter of pupil; vertebræ 44. A rather indefinite lateral line extending along body, 10 scales below the first dorsal, the pores absent on many of the scales; scales crenate, growing smaller dorsally, larger ventrally, those on posterior part of occiput, on nape, on region anterior to pectorals—above and below, and on base of caudal, very small and crowded together, those in the region of dorsals not reduced in size or crowded except at insertion of fins, where there are 4 very small ones; cheek with 5 rows; lower jaw and upper part of snout naked; basal half of interradial membranes of caudal with minute scales; first 3 spines of dorsal highest, extending when depressed within half their length of origin of soft dorsal; first dorsal ray preceded by a shorter, simple, closely attached one; other rays successively shorter than first; edge of fin slightly concave; anal similar to soft dorsal in shape, its basis 1⅗ times as long as that of soft dorsal; attachment of first ray under a point half way between insertions of dorsals; caudal deeply forked, the lobes equal; pectoral pointed when depressed, upper rays longest, extending to a vertical half way between insertions of first dorsal and ventrals. Body, during life, almost translucent, with a bluish tinge of color; in alcohol, the color is a light olive yellow; a silvery lateral band extending from axil to base of caudal, the band wider and brighter in color between dorsal and anal, growing narrow on caudal peduncle and then widening again at its posterior end. Head and body above, and the lower jaw, dusky; upper part of eye dark; edge of scales above lateral band with small black dots; caudal somewhat dusky on its basal third; other fins with little or no dark color.

Chirostoma ocotlane is easily distinguished from all other known species of the genus by its excessively long lower jaw. Except the jaw and somewhat larger eye it resembles *C. estor* in general appearance. Laguna de Chapala, Mexico. (Jordan & Snyder.)

Known only from Laguna de Chapala, near Ocotlan, Mexico. (Type, No. 6160, L. S. Jr. Univ. Mus. Coll. J. O. Snyder.)

Chirostoma ocotlane, JORDAN & SNYDER, Bull. U. S. Fish Com. 1899 (1900), 141, Laguna de Chapala, near Ocotlan, Mexico.

1154. CHIROSTOMA ESTOR, Jordan.

We have examined the type specimen of *Chirostoma estor*. The scales are small and closely crowded on the region anterior to the pectoral from the occiput to the isthmus; they are not much reduced in size nor closely crowded together between the dorsals. The teeth on the jaws are large and numerous, not arranged in definite rows; there are 3 vomerine teeth almost as large as those on the jaws.

Some exact measurements of the type, expressed in hundredths of the length of the body, are here given:

Length of body in millimeters 212; depth of caudal peduncle 7½; length of head 31½; distance from snout to occiput 23; tip of lower jaw to occiput 24; width of interorbital space 7; length of snout 12; diameter of orbit 5⅔; distance from snout to spinous dorsal 56½; insertion of spinous to soft dorsal 12½; height of longest dorsal spines 7; of longest dorsal rays 11; distance from snout to anal 62½; height of longest anal rays 12; distance from anal to caudal 22; length of caudal fin 18½; of pectoral fin 17; distance from snout to ventral 45½; length of ventral fin 10½; D. V–12; A. 18; P. 14; scales 72–19, 9 between dorsals.

1154 (a). CHIROSTOMA ALBUM (Steindachner).

The type of *Chirostoma estor* agrees externally almost perfectly with Steindachner's account of *Chirostoma album* from Lake Pátzcuaro, a species which he later places in the synonymy of *C. estor*. But the type localities are widely separated, and Steindachner found no trace of the large vomerine teeth so conspicuous in *C. estor*. We therefore regard *C. album* as probably a valid species, not identical with *C. estor*.

Page 821. After *Joturus pichardi*, Poey, add:

368 (a). NEOMUGIL, Vaillant.

Neomugil, VAILLANT, Bull. Soc. Philom., IV, 1893–1894 (June, 1894), 72 (*digueti*).

General aspect of *Mugil*. Mouth widely cleft, maxillary extending beyond anterior edge of orbit. Fine teeth in many series in each jaw, those of outer series on intermaxillary most developed, all conical, simple, small, but distinct; villiform teeth on vomer and palatines. Stomach siphonal, walls membranous, very thin in pyloric region, hence not gizzard-like; a large pyloric cœca and a second smaller one; pseudobranchiæ distinct.

This genus resembles *Joturus*, which has the teeth flattened and serrated, with only 1 series on the intermaxillary. The maxillary in *Joturus* extends not so far back. (Vaillant.) (*νέος*, new; *Mugil*.)

1198 (a). NEOMUGIL DIGUETI, Vaillant.

Head 3; depth 4; eye 6; interorbital 2.75. B. 6; D. IV–I, 8; A. I, 9; V. I, 5; scales 3–43–11; caudal fin 4. Maxillary reaching pupil; mouth deeply cleft; upper jaw the longer; no adipose eyelid. Origin of first dorsal at middle of body, the first spine 2 in depth of body; origin of anal a little in front of second dorsal. Whole head, except preocular region, scaled like the body, the scales ctenoid.

Known from 20 examples from 99 to 194 mm. long, from Lower California, south of La Paz.

(Named for the collector of the type, M. Léon Diguet.)

Neomugil digueti, VAILLANT. Bull. Soc. Philom., IV, 1883–1894 (June, 1894), 73, torrent in the Sierra de las Cacachilas de Santa Cruz, Lower California.

Page 903. In the description of *Seriola lalandi* for "A. I, 27" read "A. I, 21."

Page 962. *Centrolophidæ* can not be maintained as a distinct family. It belongs with the *Stromateidæ*.

Page 1038. After *Hadropterus scierus serrula*, insert:

HADROPTERUS MAXINKUCKIENSIS, Evermann

Head 3.75; depth 6; eye 4; snout 4.2; maxillary 3.25; mandible 2.75; interorbital 6; pectoral 1.25; ventral 1.3; D. XIV, 13; A. II, 8; scales 7–61–10.

Body rather long, slender, and subterete; caudal peduncle somewhat compressed, its least width one-half its least depth; head rather long, snout pointed; mouth moderately large, oblique, maxillary reaching past anterior part of eye, lower jaw included; eye rather large, slightly above axis of body; interorbital moderately wide, nearly flat; gill-membranes free from each other and from the isthmus; opercle with a rather long flap and stout spines; premaxillaries not protractile; fins rather large; distance from origin of spinous dorsal to tip of snout slightly greater than base of spinous dorsal or nearly twice base of soft dorsal; longest dorsal spine 2.25 in head; soft dorsal higher than spinous portion, 2 in head, the free edge gently curved; origin of anal under that of soft dorsal, its base 2.1 in head; caudal rounded or slightly emarginate.

Scales firm and strongly ctenoid, lateral line complete and straight, beginning over opercular spine; top of head and an oblong area on nape naked; space in front of spinous dorsal with small embedded scales; opercle with about 7 rows of scales; cheek with a few small embedded scales, breast naked, except 2 or 3 partially embedded scales on median line; one large scale between ventrals; belly naked anteriorly, but with about 10 enlarged, stellate scales posteriorly; space between ventrals broad, equal to width of base of ventral; preopercle smooth.

Color essentially the same as in *H. scierus;* mottled and vermiculated with light and dark brown or blackish, the middle line of back with about 9 large, roundish, dark, confluent areas, each surrounded by a wavy, whitish line; middle of side with about 7 large, confluent dark spots, the anterior 2 largest and longest, the third small, the fourth large, and the remaining 3 progressively smaller; under parts yellowish white; top of head dark; a narrow whitish line around upper posterior part of orbit; a broad black line downward from eye; upper part of preopercle and nearly whole opercle dark, each dusted on lower part; cheek dusted with fine, dark specks; an irregular pale area at anterior end of lateral line; spinous dorsal ashy, the first 3 spines black on the middle portion, the other spines dark, but not so distinctly so; tips of last few spines dark; soft dorsal light brownish or grayish, crossed near the base by a series of dark spots and above by 2 series of whitish spots; caudal spotted with white and brown; anal white, dusted with brownish; ventrals whitish, with fine, dark dustings; pectoral whitish, yellowish at base, followed by alternating series of dusky and whitish spots.

This species is related to *H. scierus*, from which it differs chiefly in having the dorsal fins united, in having the maxillary reaching beyond front of orbit, in the larger scales, the free gill-membranes, and in the smooth preopercle.

Only the type known, an example, 3.5 inches long, taken in Aubeenaubee Creek, the eastern inlet of Lake Maxinkuckee, Indiana, about ½ mile from the lake, August 4, 1899. Type No. 49378, U. S. N. M. Coll. Evermann & Scovell.

Hadropterus maxinkuckiensis, EVERMANN, Rept. U. S. Fish Com. 1899 (1900), 366, with plate, Aubeenaubee Creek, Lake Maxinkuckee, Indiana.

Page 1084. Before *Etheostoma jessiæ*, insert:

ETHEOSTOMA AUBEENAUBEI, Evermann.

Head 3.6; depth 5.5; eye 4.5; snout 4.5; maxillary 3; interorbital 5; D. X-10; A. II, 7; scales 4–55 to 58–7, 8 to 24 pores.

Body rather elongate, not much compressed except posteriorly; head rather short; snout short, somewhat decurved; mouth moderate, slightly oblique, lower jaw included, maxillary reaching front of eye; eye small, above axis of body; premaxillaries not protractile; gill-membranes free from the isthmus and each other. Fins not large, the dorsals usually distinctly, but narrowly separated, sometimes scarcely separate; origin of spinous dorsal one-third distance from tip of snout to base of caudal; outline of spinous dorsal gently rounded, the longest spine about 3 in head; longest dorsal ray about 2; first anal spine longer, and slightly stronger than second, 3 to 3.5 in head; longest anal ray about 2; pectoral short, about 1.3 in head; ventrals close together, about 2 in head; caudal rounded, 1.5 in head. Scales rather small, rough-ctenoid; lateral line incomplete, usually developed on only 8 to 24 scales at anterior end; cheek usually naked or with a few small, more or less embedded scales; opercle usually about half scaled, sometimes with but few scales; breast always naked; belly with ordinary scales; nape usually densely and regularly scaled, some scales sometimes embedded; preopercle entire; opercular flap moderate, broad; opercular spine rather small; no humeral spot or process.

Color in alcohol, greenish brown above; side with about 12 or 13 vertical, dark blotches, separated by pale orange red areas of similar size; another series of similar but smaller orange blotches along lower part of side anterior to anal fin; under parts whitish; caudal peduncle grayish; head dark above; opercle and cheek dark, with greenish shade; a dark line downward from eye; snout grayish; spinous dorsal with a narrow dark border, below which is a broad orange band, then a broad but irregular dark band along base of fin; soft dorsal and caudal barred with white and grayish, the latter in spots on the rays; anal and ventrals without markings; pectoral somewhat dusky.

This species is close to *E. iowæ*, from which it seems to differ in the almost naked cheek, the less complete scaling of the opercles, the somewhat longer maxillary, more oblique mouth, closer approximation of the dorsal fins, and the coloration. Lake Maxinkuckee, Indiana.

Many examples, each about 2 inches long, taken in Aubeenaubee Creek, the east inlet of Lake Maxinkuckee, August 4, and on other days in August and September, 1899. *E. iowæ* is a common species in the lake, but does not occur in the inlet, nor were we able to find any specimens of *E. aubeenaubei* anywhere except in this small creek. Type No. 49379, U.S.N.M. Coll. Evermann & Scovell.

Etheostoma aubeenaubei, EVERMANN, Rept. U. S. Fish Com. 1899 (1900), 367, with plate, Aubeenaubee Creek, Lake Maxinkuckee, Indiana.

Page 1212. Before *Prionodes fasciatus*, Jenyns, insert:

1597 (a). PRIONODES BALDWINI, Evermann & Marsh.

Head 2.5; depth 3.2; eye 4; snout 4.6; maxillary 2.4; mandible 2; interorbital 7; D. X, 12; A. III, 7; pectoral 1.4; ventral 1.3; caudal 1.7; scales 4–42–12.

Body elongate, moderately compressed, not elevated, covered with ctenoid scales; dorsal and ventral outlines alike; head moderate, pointed, naked above and below; eye large, greater than length of snout, high in position; mouth terminal, slightly oblique, the maxillary reaching middle of eye or somewhat beyond; gill-rakers short, 6 developed on lower limb; teeth small, conical, and sharp, on vomer and palatines and in several series in each jaw, with weak canines in front and a few canine-like teeth on middle of side of lower jaw; cheek with about 7 rows of scales; preopercle finely serrate; opercle ending in 3 sharp, flat spines, the middle one largest, a membranous pointed flap projecting beyond; fins all naked, the dorsal continuous, with a slight emargination, the spines slender and pungent, the first 4 or 5 graduated, the rest subequal, 3.2 in head, lower than the soft rays which are contained about 2.5 in head; anal fin short, the second spine longest and strongest, 3 in head, the soft part high, the fifth or sixth ray longest, reaching almost to front of anal, 2 in head; ventral with second ray produced, reaching vent; caudal truncate, or with middle rays very slightly shorter, making the margin slightly concave.

Color in life: Dorsal half of head and trunk and all of caudal peduncle scarlet, ventral portion pale blue, almost white; a yellow longitudinal band nearly as wide as pupil from preopercular margin straight across opercle and along body to lateral line under last dorsal rays; 4 quadrate or oblong black blotches just under this band, the first about under middle of spinous dorsal, second under last spines, third under first rays, fourth under last rays; from each of the first three of these blotches a square, well-defined yellow shade extends downward to belly or base of anal, a similar one from base of pectoral to ventral; 4 smaller black blotches at base of caudal, two others, somewhat larger than the last, just in front of them on caudal peduncle; a row of 9 round black spots on each side at base of dorsal fin, the first one smallest, opposite membrane of first spine, the other 8 separated somewhat obscurely into pairs, the first pair under middle spines, second under last spines, third under first rays, fourth under last rays; 2 or 3 very small black dots on upper edge of caudal peduncle; 2 or 3 more in front of dorsal on median line, each accompanied by a similar one on either side; in some specimens a few scattering ones on top of head behind eyes, sometimes regularly arranged; a few dark-brown spots behind eye; various dark markings on side of head, without very definite pattern, but usually 2 oblique stripes on cheek, a heavy black blotch on interopercle and 2 on the ramus of the mandible, which, with their fellows of the other side, make distinct crossbars on lower side of head usually extending across maxillary; chin and lower part of opercle with dark spots; lateral line white, with a few broken spots, comparatively faint, just below it; iris red, with an inner ring of white surrounding the pupil; spinous dorsal pale, the edge of the membrane black, this color bordered below with faint yellow; soft dorsal pale, spotted throughout with light orange, with a marginal band of the same, outside of which is a very narrow pale-blue edge; ventral very pale blue, the produced ray somewhat yellow; anal pale blue with some light orange on last rays; pectoral and caudal uniform pale reddish, unmarked.

In spirits all the red and yellow markings disappear, the dark persists, and additional markings are brought out as follows: Along the anterior and upper part of trunk and crossing the lateral line are dark-brown vertical bars, diffuse and running together, or separated and broken into round or quadrate blotches; in the middle part of the course of the yellow longitudinal band appears a row of very small black points; spots on soft dorsal dusky; dark mottlings on caudal; upper and lower base of pectoral, and sometimes axil, dusky.

Puerto Rico. A beautiful and strongly marked species; 2 specimens dredged and 33 others, ranging in size from 0.55 to 2 inches, caught in the tangle, off Culebra and Vieques islands, from coral bottom, in depths of 15 and 16 fathoms; the type, 2 inches long, taken in the tangle at *Fish Hawk* Station 6093, off Culebra Island, 5.25 miles southwest of Culebritas light-house, February 8, 1899, in 15 fathoms, by the U. S. Fish Commission expedition to Puerto Rico. ("Named for Mr. Albertus H. Baldwin, the artist of the U. S. Fish Commission expedition to Puerto Rico, in recognition of his excellent drawings and paintings of American fishes.")

Prionodes baldwini, EVERMANN & MARSH, Report U. S. Fish Com. 1899 (December 19, 1899), 353, off Culebra Island, P. R. (Type, No. 49361, U.S.N.M. Coll. Evermann & Marsh.)

Page 1229. After *Gramma loreto*, Poey, insert:

518 (a). RHEGMA, Gilbert, new genus.

Rhegma, GILBERT, new genus of Serranidæ (*thaumasium*).

Allied, but not closely, to *Rypticus*, *Grammistes* and *Gramma*, having the large, ctenoid scales and interrupted lateral line of *Gramma* and the peculiar physiognomy, attachment of gill-membranes, and fin structure of the *Rypticinæ*.

Scales of moderate size, thin, not embedded, minutely ciliated; lateral lines 2, the upper near base of dorsal, ceasing under origin of posterior fifth of soft dorsal, the lower line beginning slightly in front of the end of the upper line, running along middle of caudal peduncle; the tubes very short, borne on much smaller intercalated scales, and not forming a continuous line; head largely scaled, the snout and jaws naked; gill-membranes united anteriorly, forming a narrow free fold across the isthmus; branchiostegals 7; pseudobranchiæ well developed; a wide slit behind last gill-arch; gill-rakers short, broadly triangular, strongly toothed. Upper margin of opercle, above its angle, wholly attached by membrance to the shoulder girdle, as in the *Rypticinæ*. Mouth large, protractile, the lower jaw protruding, the maxillary broadly exposed, with a narrow supplemental bone along its upper edge. Teeth all villiform, in broad bands on jaws, vomer and palatines, the inner teeth on jaws slightly longer than the others and depressible. Tongue smooth. Large mucous pores on under side of mandible, and slit-like pores present on edge of preorbital and around front of eye. Anterior nostril near edge of preorbital, provided with a short tube; posterior nostril without tube or raised rim, immediately in front of eye; a short free triangular flap on upper edge of each orbit. Upper portion of preopercle with a single strong plectroid spine, directed backward and downward; bones of the head otherwise unarmed, the preorbital and preopercle with entire edges, the opercle without spines or ridges. Ventrals small and anterior in position, as in the *Rypticinæ*, consisting each of one strong spine, and five branched rays, their base being in front of base of pectorals; no enlarged scale behind base of ventrals; vertical fins low, with rounded lobes, their basal portions well scaled; dorsal with 7 low strong spines and 22 profusely branched rays; anal with 3 spines and 18 rays. One species, apparently the type of a distinct subfamily, *Rhegmatinæ*.

(*ῥῆγμα*, fracture; referring to the interrupted lateral line.)

1615 (a.) **RHEGMA THAUMASIUM**, Gilbert, new species.

Head $2\frac{3}{5}$ in length; depth 3; eye 5 in head; D. VII, 22; A. III, 18. Scales 45 in a longitudinal series along middle of side. Body elongate, moderately compressed, with very short, deep, caudal peduncle; anterior profile strongly arched, slightly depressed above orbits; interorbital space very narrow, convex, its width two-thirds diameter of orbit. Mouth large, slightly oblique; lower jaw the longer, its tip entering the profile. Dorsal spines low, strong, increasing backward, the last spine a trifle longer than diameter of orbit; anal spines short and strong, the middle spine longest. Lateral line curved strongly upward from its origin to below third dorsal spine, thence running parallel with the back to below middle of second dorsal, from which point it gradually approaches the base of the dorsal, where it terminates under the fifth ray from the last; along its anterior course it is separated from base of dorsal by from 4 to 6 scales (in oblique series); scales minutely ctenoid except on head, breast, and belly, on nape under anterior dorsal spines, and on base of pectoral; top of head scaled forward to interorbital space, the anterior scales here, as well as those on cheek, much reduced in size, embedded, so that their outlines can not be distinguished.

The following measurements of the type specimen are given:

	m.m.	One-hundredths of length to base of caudal.
Total length	85	
Length to base of caudal	70	
Greatest depth		33
Least depth caudal peduncle		15½
Length of caudal peduncle		8
Distance from tip of upper jaw to end of opercular flap		37
Length of snout		6
Diameter of eye		7½
Interorbital width		3¾
Tip of snout to end of maxillary		19
Length of pectoral		27
Tip of snout to base of upper pectoral ray		35
Tip of snout to base of ventrals		31
Length of ventrals		13
First anal spine		3½
Second anal spine		6
Third anal spine		4½
First soft anal ray		8½
Longest soft anal ray		15
First dorsal spine		4
Last dorsal spine		9
Longest dorsal ray		15
Caudal		23

Color, nearly uniform warm brown on head, body, and fins; a dusky opercular blotch; soft dorsal, anal and caudal only narrowly margined with white.

One specimen known, from Panama.

(θαυμάσιος, wonderful.)

Rhegma thaumasium, GILBERT MS., Panama (Coll. C. H. Gilbert. Type, No. 5978, L. S. Jr. Univ. Mus.)

Page 1300. After *Hæmulon scudderi*, Gill, insert the following:

1667 (a). **HÆMULON HELENÆ**, Boulenger.

Head 3½; depth 2⅘; eye 3½ in head; interorbital width 3½. D. XIII, 16; A. III, 12; scales 11–87–20, 67 pores.

Profile very much arched from snout to origin of dorsal; muzzle not reaching beyond lower jaw, little shorter than eye; mouth little oblique; maxillary reaching anterior ¼ of eye; teeth very small; 2 very small pores in chin; preopercle very feebly serrate; head scaled, except snout and chin: gill rakers very short, 15 on lower arm of arch; dorsal spines feeble, increasing to the fourth, which almost equals ½ length of head, then decreasing to the last, which is contained 4½ times in head; soft dorsal low, covered with scales; pectoral falciform, longer than head, 1 3/[illegible] times ventral;

anal spines small, increasing to the third, which is 5 in head; soft anal low and scaly; caudal almost completely scaled, deeply emarginate, the median rays less than half the external ones; caudal peduncle ½ times longer than deep; scales above lateral line in very oblique series. Grayish above, with oblique brown lines, somewhat undulating; silvery below. Length 22 cm. One specimen from Bay of Santa Elena, Ecuador. (Boulenger.) (Named for the type locality.)

Hæmulon helenæ, Boulenger, Bollettino dei Mus. di Zool. ed Anat. Comp. della Univ. di Torino. Vol. xiv, No. 335. 3, Feb. 15, 1899, Bay of St. Elena, Ecuador. (Coll. Dr. Enrico Festa.)

Page 1334. After *Pomadasis ramosus* (Poey), insert the following:

1706 (a). POMADASIS LABRACIFORME (Boulenger).

Head 3; depth 3½; eye 4; snout slightly longer than mandible, by ¼ diameter of eye, which is little more than interorbital width; maxillary reaching anterior ⅓ of eye; D. XIII, 12; A. III, 7; scales 8 or 9-68-22; teeth very small; 2 pores in chin; preopercle strongly serrate, strongest at angle; head scaled, except snout and lips; gill-rakers 13 on lower arm of first arch, the longest equaling ⅓ length of gill-filaments. Dorsal spine strong, the fifth longest, 2 in head, from which they decrease to next to last, which is 4½ in head, and a little shorter than last; soft dorsal scaled at base, its longest rays a little shorter than longest spine; pectoral 1½ in head, scarcely shorter than ventrals; second anal spine very strong, 3½ in head, third 2 in head; longest anal rays shorter than anal spine; caudal peduncle longer than deep; scales arranged in series scarcely oblique above the lateral line, which has 54 pores. Color uniform silvery. Length 17 cm. One specimen known, from the Bay of St. Elena, Ecuador. (Boulenger.) (*Labrus; forma*, form.)

Pristipoma labraciforme, Boulenger, Bollettino dei Mus. di Zool. ed Anat. Comp. della Univ. di Torino, Vol. xiv, No. 335, 3, Feb. 15, 1899, Bay of Santa Elena, Ecuador. (Coll. Dr. Enrico Festa.)

Page 1351. After *Calamus proridens*, Jordan & Gilbert, insert:

1721 (a). CALAMUS KENDALLI, Evermann & Marsh.

(Pluma.)

Head 3.1; depth 2.1; eye 3.5; snout 1.5; maxillary 2.4; interorbital 3.5; preorbital 2.1; D. XII, 12; A. III, 10: pectoral 1; ventral 1.8; caudal 1.3; scales 7-53-16.

Body deep, back strongly elevated, more so than in *C. bajonado*, but less than in *C. calamus* or *C. proridens*, the anterior profile a nearly regular curve, lacking the abrupt nuchal elevation of those species; eye large, larger than in *C. proridens;* 7 or 8 rows of scales on cheek; teeth about as in *C. proridens;* molars in 2 or more rows on sides, those of inner row much the largest, those in front becoming more numerous and merging into cardiform teeth, the most anterior of which, in each jaw, are somewhat enlarged; in front of upper jaw are 2 much enlarged antrorse canines, curved slighly upward; highest dorsal spine 2.7 in head, second anal spine 4.6.

Color in spirits: Silvery, side with bluish longitudinal lines following the rows of scales, plainest above; a pale-blue line bordering the orbit below; some blue lines on preorbital, not evidently reticulated and not as numerous as in *C. proridens;* iris yellow; otherwise as in *C. proridens*, to which this species is very close.

Puerto Rico; known from the type, a specimen 10.5 inches long, from Mayagüez, January 20, 1899, and 2 cotypes, each 8.5 inches long, one from Mayagüez, the other from Arroyo, all collected by the U. S. Fish Commission expedition to Puerto Rico. (Named for Dr. William Converse Kendall, assistant, U. S. Fish Commission.)

Calamus kendalli, EVERMANN & MARSH, Rept. U. S. Fish Com. 1899 (Dec. 19, 1899), 354, Mayagüez, Puerto Rico. (Type, No 49362, U.S.N.M. Coll. Evermann & Marsh.)

Page 1417. For *Nebris zestus*, Jordan & Starks, substitute *Nebris occidentalis*, Vaillant.

The synonymy of this species is as follows:

Nebris occidentalis, VAILLANT, Notes from the Leyden Museum, XX, 20, October, 1897, Panama; after description by Jordan & Eigenmann.

Nebris zestus, JORDAN & STARKS, in Jordan & Evermann, Fishes North & Middle America, Part II. 1417, October 3, 1898, Panama. (Type, No. 433, L. S. Jr. Univ. Mus. Coll. Dr. C. H. Gilbert.)

Page 1439. After *Bairdiella chrysoleuca* (Günther), insert the following:

1820 (a). BAIRDIELLA MIACANTHA (Boulenger).

Head 3⅓ to 3½; depth 3⅓ to 3½; eye 4⅓ to 4½, 1 to 1⅕ in interorbital width. D. XI, 21 or 22; A. II, 7 or 8; scales 5 or 6–45 to 49–11 or 12, 50 to 55 pores. Snout round, scarcely longer than eye; mouth inferior, compressed, scarcely oblique, with simple subequal teeth, the gape reaching anterior ¼ or ⅓ of eye; 2 very strong spines at angle of preopercle, the lower directed downward; gill-rakers very short, 10 or 11 on lower arm of first arch; third dorsal spine longest, ⅗ to ⅔ length of head; pectoral 1¼ in head; first anal spine very small, the second small, 2½ to 3 in head, or 1½ in longest soft ray; caudal acuminate; caudal peduncle a little longer than deep. Grayish above, with faint brown stripes following series of scales; silvery below. Close to *B. chrysoleuca*, Günther, from which it is sufficiently distinguished by the less development of the second anal spine, the smaller mouth, and the feebler dentition. Length 21 cm. Three specimens known from the port of Guayaquil. (Boulenger.)

Corvina miacanthus, BOULENGER, Bollettino dei Mus. di Zool. ed Anat. Comp. della Univ. di Torino, Vol. XIV, No. 335, 5, Feb. 15, 1899, port of Guayaquil. (Coll. Dr. Enrico Festa.)

Page 1526. After *Cichlasoma centrarchus* (Gill & Bransford), insert:

1923 (a). CICHLASOMA STEINDACHNERI, Jordan & Snyder.

Head 2½; depth 3; depth of caudal peduncle 7½; eye 3⅖ in head; snout 2⅘; interorbital space 5; longest dorsal spine 4, ray 2; longest anal spine 2⅔, ray 2; length of pectorals 1½; ventrals 1¾; caudal 1½; D. XVI, 10; A. V, 8; P. 14; scales 26–14, 7 on caudal peduncle. Length of head exceeding its depth a distance equal to diameter of orbit; body elongate, deepest above ventrals; curve of dorsal outline interrupted by a slight elevation above eye and a rather rapid descent at base of soft dorsal; ventral outline less curved than dorsal; interorbital space convex; orbit somewhat elongate laterally, located slightly nearer tip of snout than to posterior edge of opercle, its lower edge a little above a horizontal from mouth to middle of caudal peduncle; cleft of mouth almost horizontal; maxillary, except distal end, concealed by preorbital; lips thick, the lower with a narrow frenum; jaws equal, the upper moderately protractile; teeth in 2 series on each jaw, outer series in a single row, large, canine-like, far apart; inner series minute, in bands; tips of teeth brown-colored; no teeth on vomer or palatines. Gill-membranes forming a fold across the isthmus; gill-rakers on first arch 10, short and blunt. Body covered with large weakly-ctenoid scales; head with cycloid scales; upper part of head anterior to middle of orbit, snout, preorbital area, and ventral part of head, naked; a single row of small scales along bases of dorsal and anal fins; small scales on basal part of inter-radial membranes of caudal; lateral line interrupted at the fourteenth scale, beginning again 3 scales lower and extending to base of caudal; first dorsal spine very short, others gradually longer to the sixth or seventh, after which the spines are about the same length; fifth and sixth dorsal rays longest, about 1½ times the length of longest spine, depressed fin extending to posterior edge of dark caudal spot; first anal spine shortest, one-fifth as long as fifth spine, third, fourth, and fifth rays longest; depressed fin extending to anterior edge of caudal spot; caudal fin evenly rounded; pectoral rounded, extending to a vertical from vent; outer rays of pectoral longest, extending to vent. Color in alcohol, light olive, darker above than below; an indistinct, dark lateral band extending from snout to caudal; 8 or 9 scarcely distinguishable dark vertical bands on side of body; irregular dark spots at intersection of lateral and vertical bands; a small, dark spot at base of caudal; small, distinct dark dots on anterior dorsal region of head.

The total length of the type is 61 mm. Younger examples measuring about 43 mm. have the body a little deeper and the head shorter. The vertical color bands on posterior half of body are more distinct on the younger individuals. Rio Verde, Mexico. (Jordan & Snyder.)

Cichlasoma steindachneri, JORDAN & SNYDER, Bull. U. S. Fish Com. 1899 (1900), 143, Rio Verde near Rascon, Mexico. (Type, No. 6164, L. S. Jr. Univ. Mus. Coll. J. O. Snyder.)

Page 1540. Before *Theraps*, Günther, insert the following:

1948 (a). HEROS ISTLANUS, Jordan & Snyder.

Head 2⅖; depth 2⅔; depth of caudal peduncle 7; eye 4½ in head; snout 2¼; interorbital space 3½; longest dorsal spine 2⅗, ray (without filament) 1⅖; longest anal spine 2⅗, ray (without filament) 1⅓; length of pectoral 1½; ventrals 1⅓; caudal 1⅕; D. XVI, 10; A. V, 7; P. 14; scales 28–18. Body elongate, compressed, deepest above insertion of ventrals; dorsal outline rising rapidly to origin of dorsal, falling gradually to base of last spine, from which the descent to the caudal peduncle is more abrupt; ventral outline evenly rounded; interorbital space convex; eye large, orbit circular, equally distant from tip of snout and posterior edge of opercle; mouth horizontal, lower jaw projecting; lips thick, the lower without frenum, folding over the upper at their union; premaxillary protractile; maxillary small, nearly vertical in position, and almost hidden by the large preorbital; teeth on both jaws, in 2 series, the outer a single row of 24 canines, largest in front, growing smaller posteriorly, the inner series villiform; all of the teeth with brown-colored tips; gill-membranes free from isthmus; branchiostegals 5; gill-rakers on first arch 9, short, blunt, far apart. Body covered with large scales; cheek, opercle, interopercle, subopercle, and occipital portion of head with small scales; ventral part of head, preorbital area, snout, and anterior part of interorbital space naked; one row of scales extending on bases of dorsal and anal fins; scales of body weakly-ctenoid; scales of head smooth; lateral line interrupted on the nineteenth transverse row of scales, beginning again 3 scales lower down and 2 scales in advance of where it left off and extending to base of caudal; first dorsal spine short and slender, others gradually longer and heavier, posterior spine longest; each spine with a rather stiff distal, ray-like attachment, the anterior edge of which projects above the membrane of fin; tips of fourth and fifth rays of dorsal uniting to form a thread-like filament about as long as the diameter of orbit; dorsal, when depressed, extending on caudal one-third its length; first anal spine shortest, others growing gradually longer and heavier, the last $2\frac{1}{2}$ times as long as the first; spines with distal attachments similar to those of dorsal, third and fourth rays longest, united at their tips, forming a slender filament; tip of anal extending a little farther posteriorly than that of dorsal; caudal rounded; tip of pectoral rounded; ventrals located slightly posterior to base of pectoral, extending to vent, outer ray longest, ending in a filament. Color dark, an oblong brownish-black spot at base of each scale on side of body, the spots growing less distinct above the pectoral; membranes of dorsal, anal, and caudal with small spots, these more distinct and regularly arranged on soft parts of dorsal and anal; pectoral and ventrals without spots.

Young individuals have a brownish-black spot at base of caudal and on side of body at tip of pectoral; a less distinct spot at upper edge of gill-opening and also below posterior end of base of dorsal. The darker of these spots are sometimes faintly indicated on the larger individuals. Morelos, Mexico. (Jordan & Snyder.)

Known only from Rio Ixtla at Puente de Ixtla, Morelos, Mexico. (Type, No. 6150, L. S. Jr. Univ. Mus. Coll. Jordan & Snyder.)

Heros istlanus, JORDAN & SNYDER, Bull. U. S. Fish Com. 1899 (1900), 144, Rio Ixtla, Morelos, Mexico.

Page 1542. After *Neetroplus nicaraguensis*, Gill & Bransford, insert:

1951 (a). NEETROPLUS CARPINTIS, Jordan & Snyder.

Head $2\frac{5}{6}$; depth 2; depth of caudal peduncle 6; eye 5 in head; snout $2\frac{1}{5}$; interorbital space $2\frac{2}{3}$; longest dorsal spine $2\frac{1}{5}$; ray $1\frac{1}{4}$; longest anal spine 2, ray $1\frac{1}{3}$; length of pectoral $1\frac{2}{5}$; ventrals $1\frac{1}{5}$; caudal $1\frac{1}{6}$; D. XVI, 10; A. V, 8; P. 15; scales 26–17, 7 on caudal peduncle. Body compressed, deepest part above ventrals; dorsal outline straight from tip of snout to a point above anterior edge of orbit, where it is abruptly curved upward and backward to the origin of dorsal fin; from the latter point it gradually curves downward to base of first dorsal ray, from which the descent to caudal peduncle is abrupt; ventral outline evenly curved from snout to caudal peduncle; interorbital space convex, its middle portion flattened; orbit circular, nearer to posterior edge of opercle than to tip of snout, a distance equal to diameter of pupil; mouth oblique, lower jaw slightly projecting; lips thick; lower jaw with a frenum equal in width to ½ diameter of pupil; upper jaw protractile; maxillary covered by preorbital except at its distal end; teeth in 2 series on each jaw, the outer series in a single row, flat or incisor-like, larger in front, growing much smaller posteriorly, the inner series minute, in narrow bands, all the teeth loosely attached, their tips brown-colored; no teeth on vomer or palatines; gill-membranes forming a fold across the isthmus; gill-rakers on first arch 10, short, far apart. Body covered with large, weakly-ctenoid scales; cheek. opercle, and occipital portion of head with small, cycloid scales; lower jaw, snout, and anterior half of interorbital space naked; bases of dorsal and anal fins with a row of small scales; inter-radial membranes of caudal with very small scales on basal parts; lateral line interrupted on the nineteenth transverse row of scales, beginning again 3 scales lower down on the third row anterior to where it left off, and extending to base of caudal; 2 short rows of mucous tubes on inter-radial caudal scales, one above and the other below end of lateral line; first dorsal spine shortest, others gradually longer and heavier, each spine with a ray-like attachment projecting above and posterior to its tip; first anal spine shortest, others gradually longer and heavier, the fourth three times as long as the first; spines with distal attachments similar to those of the dorsal, third and fourth rays longest, extending posteriorly as far as those of the dorsal; posterior edge of caudal somewhat convex; pectoral rounded; ventrals pointed, the outer ray much the longest, extending a little beyond vent. Color in alcohol, light slate; scales with lighter central spots; posterior parts of dorsal, anal, and caudal lighter; in life the head was covered with round and elongate spots of greenish blue on a background of golden brown; side of body with bluish and brownish spots without regularity of arrangement; pectoral and distal part of soft dorsal with a yellowish tinge.

In the young of this species there are 5 or 6 dark vertical bands, about equal in width to diameter of orbit, on the posterior part of the body; a dark spot sometimes present just below lateral line on a vertical through base of eleventh dorsal spine.

This species differs from *N. nematopus* and *N. nicaraguensis* in having a much deeper body and fewer dorsal and anal spines. Laguna del Carpinte, Mexico. (Jordan & Snyder.)

One specimen (type, No. 6162, L. S. Jr. Univ. Mus.) from Laguna del Carpinte, near Tampico, Tamaulipas, Mexico, collected by J. O. Snyder.

Neetroplus carpintis, JORDAN & SNYDER, Bull. U. S. Fish Com. 1899 (1900), 145, Laguna del Carpinte, near Tampico, Mexico.

Page 1557. *Eupomacentrus flavilatus* (Gill), is the young of *Eupomacentrus rectifrenum* (Gill).

Page 1612. Before *Xyrula*, Jordan, insert:

2022 (a.) DORATONOTUS DECORIS, Evermann & Marsh.

Head 2.6; depth 3.4; eye 4; snout 3.5; maxillary 4; interorbital 4.6; D. IX, 10; A. III, 9; pectoral 1.6; ventral 2.2; caudal 1.6; scales 1–26–6. Body moderately elongate, compressed throughout; the back a little elevated, the caudal peduncle deep and rather long; dorsal and ventral outlines nearly alike, the dorsal somewhat more strongly arched; anterior profile not trenchant, almost straight from snout to front of dorsal, very slightly convex in front of dorsal and very slightly concave between eye and tip of snout; head pointed, interorbital space broad and flat; eye large, high in position, middle of pupil nearer tip of snout than end of opercle; snout long, somewhat longer than diameter of eye, moderately produced, the lips broad in front, characteristically labroid; mouth not large, the maxillary not reaching front of orbit, the jaws equal, armed with strong, sharp teeth, about 4 canines in front of upper jaw, 2 in front of lower; teeth on sides of jaws also canine-like, smaller than those in front, but not distinctly different from them; a few smaller teeth behind the main row of large ones; vomer and palatines toothless; soft dorsal and anal each with a basal sheath of about two rows of large scales, that of dorsal extending over half the fin or more, that of anal lower, the fins otherwise naked; dorsal fin continuous, with a shallow notch, the spines slender and pungent, the second longer than the first, the following ones graduated to the fifth, which is shortest, thence increasing in length to the ninth, which is longest, 2.3 in head; soft dorsal with its middle rays highest, 2.2 in head; anal with three slender, sharp, graduated spines, the third longest, 2.2 in head; the soft part similar to soft dorsal, longest rays 2.3 in head; pectoral large, symmetrical, of 11 rays, the middle ones longest, reaching past tip of ventral nearly to vent; ventral moderate, pointed, reaching half-way to vent; caudal rounded; scales large, cycloid the lateral line on second row below the dorsal interrupted near the end of dorsal and beginning again on the row below, on caudal peduncle.

Color in life: Body chiefly green, darker green on back, lighter below; lower parts of head and breast light yellow; a broad white bar from eye obliquely across cheek and opercle, bordered above by an undulating maroon line and below by a similar but fainter line; a brown bar from eye to snout; 4 dusky spots near base of dorsal extending as fainter shades downward and slightly forward to or beyond lateral line, 1 from in front of dorsal, 2 under spinous dorsal, and 1 under soft rays; short pale-blue bars or spots on breast and about pectoral; iris blue, a pinkish border surrounding pupil; dorsal greenish, the soft part with yellow shade, a pale-blue edging to the whole fin, a maroon border to the green color posteriorly just inside the pale-blue edge, a small dark spot on membrane between seventh and eighth rays and a blue spot on membrane of first spine; anal colored like soft dorsal, the maroon border extending from first spine to last ray inside the pale edging, the dark spot between sixth and seventh rays; ventral green near base, pale blue outwardly, the green color bordered by maroon spots; pectoral plain, pale green; caudal very pale transparent blue, a wedge-shaped maroon spot on the 2 upper rays near tip and a corresponding one on the 2 lower rays, the base of the wedge on outer ray: base of caudal with a pale undulate vertical bar bordered in front by a black line. In spirits, pale green, the maroon markings faintly persistent, becoming dusky.

Puerto Rico; known only from the type, 1.45 inches long, taken in the seine at Ponce, January 30, 1899, by the United States Fish Commission expedition to Puerto Rico. (*decoris*, beautiful.)

Doratonotus decoris, EVERMANN & MARSH, Rept. U. S. Fish Com. 1899 (Dec. 19, 1899), 355, Mayagüez, P. R. (Type, No. 49363, U.S.N.M. Coll. Evermann & Marsh.)

Page 1720. A specimen of *Alutera monoceros* (Osbeck) has recently been recorded by Dr. H. M. Smith from Woods Hole, in Bull. U. S. Fish Com. 1898 (1899), 273, pl. 64.

Page 1733. *Tetrodon nephelus*, Goode & Bean, is a good species distinct from *T. spengleri*, Bloch, and should stand as

2147 (a). SPHEROIDES NEPHELUS (Goode & Bean).

Page 1968. To the synonymy of *Uranidea gracilis* (Heckel), add:

Cottus gracilis cayuga, MEEK, Ann. N. Y. Ac. Sci., IV, 1888, 315, Cayuga Lake, N. Y.

Page 2017. The recent studies of the tide-pool Cottoids of the California coast by Mr. Arthur W. Greeley have resulted in the discovery of some new species and genera and other additional information regarding this group of fishes. The following new species and genera are to be added:

2384 (a). BLENNICOTTUS RECALVUS, Greeley.

Head 3⅔; eye 4¾ in head; snout 3; D. IX, 15 or 16; A. 11 or 12; P. 14. Body short, stout, broad anteriorly; the head very broad, short and blunt; snout obtuse; interorbital space 5/6 eye, grooved, the groove leading into a depressed space behind the eyes; mouth distinctly terminal, the maxillary reaching a vertical below the anterior edge of orbit, the lower jaw included; minute conical teeth on jaws, vomer, and palatines; nasal spines very small; no preopercular spine apparent in adults; edge of preopercle rounded; opercle ending in a rounded flap; branchiostegals six, the membranes broadly united, free from the isthmus; gills 3½, a slit behind the last gill. Dorsal fins very long, slightly joined at the base, origin of first dorsal directly over tip of opercle, that of soft dorsal in advance of origin of anal; first dorsal slightly rounded, the middle ray the longest; pectoral reaching origin of anal, membranes of first seven rays deeply emarginate; ventrals reaching vent; anal papilla of male very large; anal low, the membranes of all the rays except the last three deeply emarginate, none of the rays enlarged in the male; caudal short, slightly rounded.

Cirri few and small, those of top of head joined at base in conspicuous bunches, two irregular occipital rows, a few below these on the side of head, and on the margins of preopercle and opercle; a few above origin of pectoral, and a weak row along the anterior third of the lateral line.

Color of body, light brown, vermiculated with white, and marked dorsally with 4 or 5 wedge-shaped spots of dark brown, edged with white, and more distinct posteriorly; 2 pinkish spots on the dorsal side of the caudal peduncle, and a faint shading of the same color on side of head and along anterior fourth of lateral line; entire under surface dull brown, tinged with olive; fins indistinctly barred with grayish white; tail faintly tinged with pink. In some specimens the color is an almost uniform dull brown while in others the light markings are prominent. Some young individuals from among the green algae are uniform light green.

The bluntness of the snout and preopercular spines, and the terminal mouth make this species easily distinguishable from all related forms, except *B. globiceps*, from which it is separated by the shape and size of its preopercular and nasal spines, the number of its cirri, 12, and the size of its mouth. The adults of these 2 species can be readily distinguished, but the young of *B. recalvus* is very similar to the young of *B. globiceps*, indicating that *B. globiceps* is probably the ancestral form. Girard's old description of *Oligocottus globiceps* has been erroneously associated with this fish, which does not extend so far north as the type locality of *B. globiceps*. *B. recalvus* is distributed from San Diego to Santa Cruz, where it is immediately succeeded by *B. globiceps* on the north. No specimens of *B. recalvus* have been taken north of the region of Santa Cruz. On the other hand, several specimens of *B. globiceps* have been collected on the coast of Monterey County south of Monterey Bay, therefore within the range of *B. recalvus*. The relations between the two species where their ranges overlap is still to be made out. *B. recalvus* is quite common throughout its range and everywhere inhabits the deep shaded tide-pools, near low water mark, where a large number will often be found in a single pool. (Greeley.) (*recalvus*, bald in front.)

Centridermichthys globiceps, GÜNTHER, Cat., II, 171, 1860; not of Girard.

Oligocottus globiceps, JORDAN & GILBERT, Synopsis, 718, 1883.

Blennicottus globiceps, JORDAN & STARKS, Proc. Cal. Ac. Sci. 1895, 808; JORDAN & EVERMANN, Fishes of North and Middle America, II, 2017, 1898; not *Oligocottus globiceps* Girard.

Blennicottus recalvus, GREELEY, Bull. U. S. Fish Com. 1899 (Dec. 13, 1899), 9, fig. 1, Pacific Grove, Cal. (Type, No. 6068, L. S. Jr. Univ. Mus. Coll. Greeley & Cowles.)

746 (a). RUSCICULUS, Greeley.

Rusciculus, GREELEY, Bull. U. S. Fish Com. 1899 (Dec. 13, 1899), 13 (*rimensis*).

This genus is allied to *Oxycottus*, differing in the presence of minute prickly scales, which cover dorsal half of body. Preopercular spine simple, sharp. No slit behind the last gill. (*ruscum*, the butcher's broom, a rough-skinned plant.)

2384 (a). RUSCICULUS RIMENSIS, Greeley.

Head 3½; eye 4 in head; snout 3½ in head; D. IX–17 or 18; A. 14; P. 14; V. 1, 3. Body compressed, very slender, the caudal peduncle especially so; head compressed, flat; snout pointed; interorbital space $\frac{5}{6}$ eye, grooved; top of head flat and slightly concave; nasal spines large, blunt, snout abruptly decurved below them. Dorsal half of body covered with minute, embedded, prickly scales partially arranged in obscure oblique rows, none below lateral line. Minute pointed teeth on jaws, vomer, and palatines; jaws subequal, mouth horizontal, the maxillary reaching a vertical below the anterior edge of pupil. Margin of preopercle armed with one sharp spine curved upward, below which are 1 and sometimes 2 very short blunt processes; margin of opercle ending dorsally in a pointed flap. Branchiostegals 6, the membranes broadly united, free from the isthmus; no slit behind the last gill. Dorsal fins not joined, the soft dorsal very large; first dorsal beginning slightly in advance of opercular flap, the upper edge much rounded, the fifth spine being longest; origin of soft dorsal just in front of origin of the anal in the female, directly above it in the male, the fin very long; pectoral large, reaching a vertical below ninth ray of soft dorsal; origin of ventrals posterior to a point midway between anal and base of pectoral in the male, anterior to it in the female, the difference caused by the enlargement of first 2 anal rays in the male; anal fin small, the rays slender, the membranes of all deeply emarginate; the first 2 anal rays of male greatly enlarged, joined by membrane to each other and to the rest of the fin; the posterior edge of tail nearly straight; anal papilla inconspicuous. Cirri small and scarce, always occurring singly, never in bunches or joined at the base, with the exception of a few pairs along the anterior third of the lateral line; one above each orbit, 2 rows of 3 each behind these on top of head, 1 cirrus on the inside of each nasal spine; a cirrus on the end of maxillary, 2 or 3 on the margin of the preopercle below the preopercular spine, and a row along the anterior half of the lateral line. Color, light olive or reddish brown tinged with lavender, marked dorsally with 4 or 5 wedge-shaped, indented spots of black, a broken band of same color along the lateral line, sometimes sending branches below it which show a tendency to inclose round spots; a more or less distinct spot of black on top of the head; a faint postocular line, a spot below the eye, and a preopercular line running from eye to snout, all of same color; pectoral and caudal indistinctly barred with brown, anal tinged with it, and the dorsal covered with fine brown or black spots sometimes very faint; throat and belly pale yellowish white, unspotted.

This species is most closely related to *Oxycottus embryum*, with which it agrees in general coloration, but differs decidedly in the presence of scales, the slenderer body, the larger number of soft dorsal and anal rays, the serrated margin of the preopercle, and the arrangement of the cirri. Rare; only 2 other specimens from Point Lobos, California, are known to us. It inhabits the tide-pools lined with corallines, and in its coloration imitates very closely these algæ. Length 40 mm. The smallest of our tide-pool fishes. (Greeley.) (*rimus*, a crevice; *rimensis*, living in crevices.)

Rusciculus rimensis, GREELEY, Bull. U. S. Fish Com. 1899 (Dec. 13, 1899), 13, fig. 3, Point Lobos, Monterey County, Cal. (Type, No. 6067, L. S. Jr. Univ. Mus. Coll. A. W. Greeley.)

746 (b). DIALARCHUS, Greeley.

Dialarchus, GREELEY, Bull. U. S. Fish Com. 1899 (Dec. 13, 1899), 14 (*snyderi*).

Preopercular spine forked at tip; scales none; first anal ray of male enlarged, joined to the second, the two widely separated from the rest of the fin. Closely allied to *Oligocottus*, differing only in the character of the anal rays of the male.

(*διαλόσ*, divided; *ἀρχός*, anus.)

2384 (b). DIALARCHUS SNYDERI, Greeley.

Head 3¼; eye 4¼ in head; snout 3½; D. VIII–18 or 19; A. 13 to 15; P. 13 to 15; V. 1, 3. Body elongate, slender, the snout pointed, compressed; minute conical teeth on jaws, vomer, and front of palatines; jaws equal; mouth horizontal, the maxillary 3 in head, reaching a vertical below anterior edge of pupil. Interorbital space ⅚ eye, shallowly grooved, the groove leading into a depressed space between the occipital ridges; nasal spines large. Margin of preopercle armed with a strong spine, ½ as long as eye, from the upper border of which at base extends a second spine pointing abruptly upward and inward; both spines covered with skin in life; margin of opercle ending in a pointed flap entirely unarmed. Branchiostegals 6, the membranes broadly united, free from the isthmus. Gills 3½, a slit behind the last gill. Dorsal fins large, separated by ½ diameter of eye, whole length equaling that from caudal to base of pectoral; first dorsal beginning slightly in advance of margin of opercle, upper edge nearly straight, curving abruptly downward from the sixth spine; origin of soft dorsal in advance of anal; pectoral large, reaching well beyond the origin of the anal; ventrals almost midway between base of pectoral and anal; anal fin small, rays all feeble in the female, in the male the first ray only greatly enlarged, joined to the second, the 2 distinctly separated from the rest of the fin, the membranes of all except the last 3 or 4 rays deeply emarginate. Anal papilla small, present in the male only. Cirri very numerous, usually occurring in bunches of 3 or 4, those of head joined at the base, forming a comb; 2 pairs of bunches above orbits, with the rudiments of a third bunch in front of these, 3 on top of head, behind orbits, 2 or 3 bunches just below these on side of head, 2 or 3 single cirri on margin of preopercle, a thick bunch above the preopercular spines, 4 or 5 on lower margin of opercle, with a thick bunch on its upper margin; a short row above the base of the pectoral; a row of bunched cirri along anterior two-thirds of lateral line, another well-defined row along the dorsal fin from the third spine to the sixteenth or seventeenth ray of soft dorsal, this row containing a bunch at the base of each spine and ray, with the occasional exception of the first ray; 5 or 6 scattered bunches between the dorsal and lateral rows on each side of body; a cirrus at the tip of each dorsal spine.

Color, light reddish brown, sometimes almost pink, thickly spotted with fine indistinct white spots; 4 or 5 irregular dark brown spots along the base of dorsal, a band of same color along lateral line, sometimes very much broken and extending ventrally, shading into the uniform reddish brown below, and including 3 or 4 round pinkish spots; a dark brown post-ocular line, another running forward from the eye, a patch of same color on top of head, another on side of head, and 2 or 3 on edge of opercle; throat reddish brown with several distinct white spots; belly bluish green; a silvery white patch between the bases of the pectorals; dorsal fins pale reddish brown with black and clear spots; pectoral crossed irregularly with white; anal fin pale pink, crossed with dark brown. There are 2 or 3 perfectly distinct types of coloration, as follows: Some specimens from pools containing green algæ are pure light green, others from coralline pools are tinged with lavender, as *B. embryum.* This species resembles most closely *O. maculosus,* which name has been erroneously applied to it, but it differs markedly in its slenderer body, more pointed snout, the arrangement of the cirri, and the perfectly distinct coloration, also in the greater length of the dorsal fins, the enlargement of only one anal ray in the male, and the shortness of the maxillary. Coast of California.

Specimens are at hand from Crescent City, Cal., Bolinas Bay, Half Moon Bay, Monterey Bay, and San Luis Obispo, Cal. Found in all kinds of pools, from San Francisco to Monterey Bay, but nowhere common. Length 60 mm. The most beautiful and active of the tide-pool fishes, extremely variable in color. (Greeley.)

Centridermichthys maculosus, GÜNTHER, Cat., II, 171, 1860; not *Oligocottus maculosus,* Girard.

Oligocottus maculosus, JORDAN & GILBERT, Synopsis, 718, 1883; JORDAN & EVERMANN, Fishes of North and Middle America, II, 2013, 1898.

Oligocottus snyderi, GREELEY, in Jordan & Evermann, Fishes of North and Middle America, III, 2871, 1898, Pacific Grove, Cal. (Type, No. 5846, L. S. Jr. Univ. Mus. Coll. Greeley & Maddren.)

Dialarchus snyderi, GREELEY, Bull. U. S. Fish Com. 1899, 15, fig. 4.

946 (c) EXIMIA, Greeley.

Eximia, Greeley, Bull. U. S. Fish Com. 1899 (Dec. 13, 1899), 18 (*rubellio*).

Allied to *Oligocottus,* but differing in the presence of a large three-pointed preopercular spine instead of the simple forked spine of *Oligocottus.* Skin smooth. A slit behind the last gill.

2384 (c). **EXIMIA RUBELLIO,** Greeley.

Head $2\frac{5}{6}$; eye $3\frac{3}{4}$ in head; snout $3\frac{3}{4}$; D. VII or VIII–15 or 16; A. 12 or 13; P. 13 or 14; V. 1, 3. Body compressed, snout pointed and compressed, head deep, occiput narrow, slightly concave; interorbital space narrow, $\frac{1}{2}$ the large eye, shallowly grooved. Nasal spines prominent, very large and pointed. Teeth small, pointed on jaws, vomer and palatines; jaws equal, mouth horizontal, maxillary 3 in head, reaching a vertical below anterior edge of pupil. Margin of preopercle armed with a very strong spine as long as eye, extending backward and downward, bearing on its upper surface a second and third spine, both pointing back and up; all the spines covered with skin in life; opercle ending in a rounded flap. Branchiostegals 6, not united to the isthmus; gills $3\frac{1}{2}$, a slit behind the last gill. Anal papilla inconspicuous. Dorsal fins not joined; first dorsal beginning in advance of margin of opercle, first 2 spines short, the upper margin slightly rounded; soft dorsal beginning in advance of origin of anal, all the rays and spines very slender, pectoral reaching well beyond the origin of the anal; anal fin small, the rays slender, the membranes emarginate between each 2 rays; in the males the first ray enlarged, the second slightly elongated, the 2 united and not separated from the rest of the fin, as in *Dialarchus snyderi;* ventrals situated below the upper edge of the base of the pectoral, just reaching the anus. Cirri all distinct, never joined at the base in a comb as in *Dialarchus snyderi;* 3 pairs of 2 or 3 cirri each above the orbits, the first directly above the nasal spines, 3 pairs on top of head behind orbits, a few scattered cirri below these on side of head, a bunch of 2 or 3 on end of maxillary, a row on lower margin of preopercle, a large bunch above the preopercular spines, and several scattered cirri on margin of opercle; a row of bunched cirri along the anterior half of lateral line, a row along the base of the dorsal, including a bunch of 3 or 4 for each spine and ray, the row bending downward at the last spine of the first dorsal, leaving a space between the cirri and the base of the dorsal spines; a few scattered cirri between the dorsal and lateral rows, and below the lateral line behind the pectoral fin. Color light brown to all shades of light red, pink, or lavender, spotted everywhere with white, the spots extremely minute on dorsal half of body, but more conspicuous ventrally; 5 wedge-shaped spots of dark brown along dorsal side of body; head dark brown, sometimes blotched with red or green, becoming lighter on side, leaving a dark postocular line extending from eye to the preopercular spine, and a dark spot on lower margin of preopercle, everywhere very finely marked with white and blue; a white spot with a brown center just in front of first dorsal; throat and belly a very light, bluish green, shading into a faint yellow behind pectoral, and a brownish green on each side of anal; all the fins, excepting the ventrals, light brownish green barred with dark brown; caudal light reddish brown, anal and tip of pectoral tinged with pinkish. A young individual is lighter and more brilliantly colored. This species is most closely allied to *Dialarchus snyderi*, from which it differs in the presence of a third preopercular spine, the greater depth and comparative length of the head, the larger eye and nasal spines, and the arrangement of the cirri. Many other specimens taken at Monterey Bay, but it is not recorded from any other locality. The most brilliantly colored of the tide-pool fishes, inhabiting only the deep pools rich in plant life. (*rubellio*, a rosy one.)

Eximia rubellio, Greeley, Bull. U. S. Fish Com. 1899 (Dec. 13, 1899), 18, fig. 5, Pacific Grove, Cal. (Type, No. 6066, L. S. Jr. Univ. Mus. Coll. Greeley & Maddren.)

Page 2027. *Gilbertina*, Jordan & Starks, is preoccupied in Lepidoptera. For its use in ichthyology Dr. Berg has substituted *Gilbertidia*.

Gilbertidia Berg, Com. del Museo Nac. de Buenos Aires, 1898 (Dec. 17, 1898), 43 (*sigolutes*).

Page 2207. After *Sicydium vincente*, Jordan & Evermann, insert:

2531 (b). SICYDIUM CAGUITÆ, Evermann & Marsh.

Head 4.4; depth 4.8; eye 5.75; snout 2.5; maxillary 2; mandible 2.75; interorbital width 3; preorbital 3.5; D. VI–I, 10; A. I, 9; scales 83–25; longest dorsal spine 1.5 in head, longest ray 2; longest anal spine 2 in head, longest ray 2; pectoral 1.1; ventral disk 1.75; caudal 1.

Body rather stout, heavy forward; head large, broad; mouth large, its width 1.5 in head; lips very thick; maxillary not greatly produced; teeth simple, flexible; a median cleft in upper lip; pectoral somewhat shorter than head; dorsal spines without filaments, the longest about 1.5 in depth of body; space between dorsals about equal to orbit; soft rays of dorsal and anal scarcely reaching base of caudal; ventrals united, forming a cup-shaped disk, only about two-fifths posterior edge free from belly; caudal rounded. Scales very small, ctenoid, densely covering entire body except a broad strip on belly; posterior portion of nape with very fine scales; entire head naked.

Color: Dark brown or olivaceous on head, side, and back; under parts pale; fins all pale, the anal with a narrow darkish margin; caudal somewhat dark; no dark vertical bars on body and none at base of pectoral; no H-shaped figure at base of caudal.

This species is close to *S. plumieri*, from which it differs chiefly in the color, the more complete squamation, the shorter pectoral, and the nonfilamentous character of the dorsal spines.

Puerto Rico. A single specimen, 3.63 inches long, obtained in the Rio de Caguitas at Caguas, January 9, 1899, by the U. S. Fish Commission expedition to Puerto Rico. (Named for the Rio de Caguitas, from which the type was obtained.)

Sicydium caguitæ, EVERMANN & MARSH, Rept. U. S. Fish Com. 1899 (Dec. 19, 1899), 355, Rio de Caguitas, Caguas, P. R. (Type, No. 49364, U.S.N.M. Coll. Evermann & Marsh.)

Page 2230. After *Gobius oceanicus*, Pallas, insert:

2558 (a). GOBIUS BAYAMONENSIS, Evermann & Marsh.

Head 4.8; depth 6.4; eye 5; snout 3.2; maxillary 1.8; mandible 1.9; interorbital 7.6; preorbital 4.6; scales 71-19, about 29 before dorsal; D. IV-14, the longest spine about 0.7 in head, the longest ray 1.5; A. 15, the longest ray 1.5; pectoral 1.1; ventrals 1.1; caudal very long and pointed. Body very long and slender; head long; caudal peduncle long; mouth very large, oblique; maxillary long, reaching past posterior border of orbit.

Color as in *G. oceanicus*, which this species closely resembles. The smaller (71 instead of 63 to 65), almost cycloid scales, the longer head, larger mouth, longer maxillary, and the longer and more slender body are differences which we can not reconcile with the descriptions of that species or with the numerous specimens of it which we have from Puerto Rico.

Puerto Rico. Known only from the type, a specimen 9 inches long, obtained in the San Juan market January 14, 1899, by the U. S. Fish Commission expedition to Puerto Rico. It probably came from near the mouth of the Bayamon River at Palo Seco, for which stream the species was named.

Gobius bayamonensis, EVERMANN & MARSH, Rept. U. S. Fish Com. 1899 (Dec. 19, 1899), 355, Mouth of Bayamon River, Palo Seco, P. R. (Type, No. 49365, U.S.N.M.; coll. Evermann & Marsh.)

Page 2218. To the synonymy of *Gobius soporator* add the following:

Gobius arundelii, GARMAN, Proc. N. E. Zool. Club, I, 63, June 9, 1899, Clipperton Island. (Type in M. C. Z.)

Page 2240. Before, *Aboma*, Jordan & Starks, insert:

2570 (a). BOLLMANNIA BOQUERONENSIS, Evermann & Marsh.

Head 4; depth 5.5; eye 3.5; snout 4.4; maxillary 2.2; mandible 2.5; interorbital width 3 in eye; preorbital 6; scales 27–8; D. VII–13, the longest spine 1.5 in head, the longest ray 1.2; A. 12, the longest ray 1.25 in head; pectoral 1; ventrals 1.1; caudal 0.4.

Body long, slender, tapering; head short; snout blunt; mouth large, oblique; jaws subequal, maxillary reaching posterior border of pupil; isthmus narrow, the gill-openings reaching forward to below preopercle; eyes large, high, close together, the interorbital very narrow and without median keel; no fleshy process on inner edge of shoulder girdle; teeth on jaws in narrow bands, those of outer series somewhat enlarged; opercle short, about 3 in head. Fins moderate; origin of spinous dorsal slightly behind base of pectoral, its spines 7 in number, not filamentous; interspace between dorsals less than diameter of eye; soft rays of dorsal and anal reaching, when depressed, beyond base of caudal; caudal long and pointed, as in *Gobius oceanicus;* pectoral pointed, reaching beyond origin of anal; ventral disk moderate, free from belly, the longest rays barely reaching origin of anal. Scales very large, weakly ctenoid; nape, cheek, and breast scaled, the scales somewhat smaller than on body, about 9 scales before the dorsal.

Color: Pale olivaceous or straw-color, back and upper part of head with profuse fine dark punctulations; under parts pale, breast somewhat dusky; dorsal fins barred with white and dark, a large jet-black ocellus on posterior part of spinous dorsal; other fins pale, the ventral disk somewhat dusky in front. The only known Atlantic member of the genus.

Length 2 to 3 inches. Puerto Rico. Known only from 5 specimens dredged by the U. S. Fish Commission expedition to Puerto Rico, off Puerto Real, in Ensenada del Boqueron, January 25, 1899. (Named for the type locality.)

Bollmannia boqueronensis, EVERMANN & MARSH, Rept. U. S. Fish Com. 1899 (Dec. 19, 1899), 356, Ensenada del Boqueron, off Puerto Real, in 8.5 fathoms, at Fish Hawk station 6074. (Type, No. 49366, U.S.N.M. Coll. Evermann & Marsh.)

Page 2245. Before *Microgobius thalassinus*, Jordan & Gilbert, insert:

2575 (a). MICROGOBIUS MEEKI, Evermann & Marsh.

Head 3.75; depth 6; eye 3.5; snout 5.5; interorbital 7; preorbital 7; maxillary 2; mandible 1.5; scales 55–12; D. VII–17; A. 16.

Body slender, greatly compressed, tapering regularly from pectorals to caudal; head moderately heavy, interorbital space very narrow; eye large, high; mouth large, oblique; maxillary reaching posterior border of orbit; lower jaw projecting; teeth in bands in each jaw, the outer series greatly enlarged and strongly recurved, those of lower jaw largest; isthmus rather narrow, the gill-openings continue forward.

Body densely scaled, the scales strongly ctenoid, those anteriorly somewhat reduced; nape, breast, and entire head naked. Origin of spinous dorsal from snout 3.5 in length; dorsals very close together; spines of first dorsal filamentous, exceeding head in length; soft dorsal and anal long, their bases about equal, about 2.5 in body, their last rays reaching past base of caudal when depressed; caudal pointed, its longest rays about equal to head; pectoral about equal to head, reaching origin of anal; ventrals united, almost reaching origin of anal.

Color: Light olivaceous, dusted over uniformly with fine dark punctulations; a large dark shoulder spot between the base of pectoral and origin of spinous dorsal; a few indistinct dark areas on side of head; lower jaw dark at tip; an obscure dark blotch at base of caudal; fins all rather pale except ventrals, which are dark, perhaps bluish in life; caudal somewhat dusky; anal dark-edged. Length 1.5 inches.

This species seems related to *M. eulepis*, Eigenmann & Eigenmann, described from Fortress Monroe, Va., but differs in the smaller and strongly ctenoid scales, greatly compressed body, and in the coloration.

Puerto Rico; known only from the type, 1.5 inches long, dredged by the U. S. Fish Commission expedition to Puerto Rico, February 8, 1899. (Named for Dr. Seth Eugene Meek, assistant curator of zoology, Field Columbian Museum.)

Microgobius meeki, EVERMANN & MARSH, Rept. U. S. Fish Com. 1899 (Dec. 19, 1899), 356, between Vieques and Culebra islands at Fish Hawk station 6087, in 15.25 fathoms. (Type, No. 49367, U.S.N.M. Coll. Evermann & Marsh.)

Page 2350. After *Enneanectes carminalis* (Jordan & Gilbert), insert:

868 (b). GILLIAS, Evermann & Marsh.

Gillias, EVERMANN & MARSH, Rept. U. S. Fish Com. 1899 (Dec. 19, 1899), 357 (*jordani*).

Body short and stout, tapering rapidly from the short, broad head to the short, compressed caudal peduncle; scales large, rough-ctenoid; lateral line complete, or nearly so, broken under last spines of middle dorsal; a broad, double-pointed tentacle above eye; dorsal fin divided into 3 parts, the first of 3 short spines, the second of 11 longer spines, and the third of 7 rays.

This genus is closely related to *Enneanectes*, Jordan & Evermann, from which it differs in the presence of the orbital tentacle, the more complete development of the lateral line, and the larger scales.

(Named for Dr. Theodore Gill.)

2687 (b). GILLIAS JORDANI, Evermann & Marsh.

Head 3.5; depth 4.3; eye 2.5; snout 3.5; maxillary 2.4; mandible 1.9; scales 2–30–7; D. III–XII–7; A. II, 15; longest dorsal spine 1.8 in head, longest ray 1.6; longest anal ray 2.3; pectoral 0.8; ventral 1.3; caudal 1.3.

Body short and stout, tapering rapidly to the short, compressed caudal peduncle; head short; snout short; blunt, concave in front of eyes; mouth small, slightly oblique, jaws equal; eye large, high up, interorbital width very narrow; a broad bifid orbital tentacle, none on nape. Scales very large and rough-ctenoid; opercles and entire head rough; lateral line nearly complete, beginning immediately above base of pectoral at upper end of gill-opening and extending parallel with back to posterior part of middle dorsal fin (or for 12 scales) where there is a break, the line dropping down 3 scales, then continuing with one or two interruptions to base of caudal; belly and breast scaled; dorsals 3, the first of 3 short, flexible spines, close to the second, which has 12 longer, rather stiffer, spines, separated from the third by a space one-third diameter of eye; anal long and low, the membranes deeply notched between the rays; pectoral of 15 rays, broad and short, reaching posterior end of second dorsal; ventral 2, slender.

Color in alcohol: Brown, body crossed by 4 broad blackish bars, one at the origin of second dorsal, one under last spines of same fin, the third between second and third dorsals, and the fourth under third dorsal; an inky-black bar across caudal peduncle at base of caudal fin; head and under parts rusty; fins all barred with light and dark; caudal with a narrow light bar at base, then a black one, then a broader white one, followed by a much broader dark bar containing some white areas, the fin finally tipped with white. Puerto Rico. Two specimens of this well-marked and interesting species were obtained by the U. S. Fish Commission expedition to Puerto Rico, the type 1.5 inches long (No. 49368, U.S.N.M.), taken on the Cardona Light-House Reef, at Ponce, February 1, 1899, and another specimen of about the same size taken at the same place the preceding day.

(Named for Dr. David Starr Jordan.)

Gillias jordani, EVERMANN & MARSH, Rept. U. S. Fish Com. 1899 (Dec. 19, 1899), 357, Cordona Light-House Reef, Ponce, P. R. (coll. Evermann & Marsh.)

Page 2357. After *Malacoctenus lugubris* (Poey), insert:

2696 (a). MALACOCTENUS CULEBRÆ, Evermann & Marsh.

Head 3.35; depth 5; eye 4.2; snout 4.5; maxillary 2.2; mandible 1.8; interorbital 6.5; scales 2–35–11; D. XXI, 8; A. II, 18; pectoral 1.3; ventral 1.3; caudal 1.4.

Body slender, compressed; head rather long, pointed, upper profile convex; mouth large, the maxillary nearly reaching posterior border of orbit; lips thick, jaws equal; teeth very small, conical, a single row in each jaw; a single nasal, ocular, and nuchal filament; dorsal fin moderately high, originating above the origin of lateral line, a shallow notch in front of last two dorsal spines, the membrane free from caudal; anal origin under about tenth dorsal spine; caudal somewhat pointed; pectoral large, reaching anal; ventrals moderate, not reaching anus, of two rays, no spine evident; lateral line distinct throughout, running high anteriorly, where it is slightly curved, turning abruptly downward over the origin of anal, thence median to base of caudal.

Color in spirits: Body everywhere mottled with dark brown, in somewhat regularly arranged blotches, a series of about nine of these at the base of dorsal, barely extending upon the fin; a similar series of much smaller ones at base of anal, not evident on all specimens; below the series at base of dorsal are two other series of the same blotches less deep in color and not so well defined, extending the length of body and sometimes forming, with the upper series, more or less broken vertical bars;

between the blotches a lighter shade of brown is interwoven with pale streaks of ground color: head nearly pale below, save some dark on chin and isthmus; two wide streaks from eye across cheek; opercle dark brown; top of head with the color of body; lips with brown and pale stripes; posterior half of maxillary pale; dorsal rather dark; caudal uniform gray or faintly barred; anal similar to dorsal in color; the rays with pale tips forming a white edge; pectoral like caudal; ventrals pale. Length about 1.5 inches.

A plainly marked species most closely related to *M. lugubris* (Poey). Puerto Rico; only 3 specimens known, all from the coral reefs about Culebra Island, February 9, 1899.

(Named for the type locality.)

Malacoctenus culebræ, EVERMANN & MARSH, Rept. U. S. Fish Com. 1899 (Dec. 19, 1899), 357, Culebra Island. (Type, No. 49369, U. S. N. M. Coll. Evermann & Marsh.)

Page. 2358. After *Malacoctenus gillii* (Steindachner), insert:

2697 (a). MALACOCTENUS MOOREI, Evermann & Marsh.

Head 3.6; depth 3.7; eye 3.5; snout 3.4; maxillary 4.5; mandible 4.5; interorbital 4; scales 3–45–5. D. XXII, 11; A. II, 20; pectoral 1 in head; ventral 1.2; caudal 1.2; longest dorsal spine 1.5, ray 1.2; longest anal ray 1.5.

Body short, rather stout, compressed; head short, snout short, but pointed; mouth rather small, little oblique, the gape scarcely reaching orbit; teeth in each jaw in a single series; gill membranes broadly united across the isthmus; eye small, interorbital space wide; dorsal outline rising abruptly to above eye, thence gently curved to origin of dorsal fin, and from there nearly straight to base of caudal fin; ventral outline regularly convex.

Color in alcohol: Light olivaceous, the body crossed by about 9 or 10 broad dark vertical bars, which extend upon dorsal fin, these usually broadest above, the pale interspaces therefore broadest on lower half of body; the fourth from last is a narrow dark line, the one following it is a double spot, the next narrow and indistinct, the last, at base of caudal, more distinct, followed by 3 small irregular white spots; top of head brown; side of head with fine punctulations; a dark line running forward from eye, a dark spot below eye, 2 or 3 dark blotches on anterior edge of opercle; under surface of head crossed by 3 or 4 irregular, indistinct dark lines; caudal and anal with fine dusky punctulations; pectoral and ventrals pale.

This species is close to *M. gillii*, from which it may be distinguished by the larger dorsal and anal fins, the greater depth, wider interorbital, and the coloration.

Puerto Rico; known only from the type, 1.4 inches long, obtained by the U. S. Fish Commission expedition to Puerto Rico, February 11, 1899.

(Named for Dr. H. F. Moore, naturalist on the U. S. Fish Commission steamer *Albatross*.)

Malacoctenus moorei, EVERMANN & MARSH, Rept. U. S. Fish Com. 1899 (Dec. 19, 1899), 358, Culebra Island. (Type, No. 49370, U.S.N.M. Coll. Evermann & Marsh.)

Page 2358. After *Malacoctenus bimaculatus* (Steindachner), insert:

2697 (b). MALACOCTENUS PUERTORICENSIS, Evermann & Marsh.

Head 3.4; depth 3.4; eye 4; snout 3.5; maxillary 3.4; mandible 2.6; interorbital 7; preorbital 8; scales 4–44–8. D. XX, 10; A. II, 19; P. 14; V. 2; C. 13.

Body short, stout, compressed; head rather long, snout long and pointed; mouth small, little oblique, the maxillary scarcely reaching front of orbit; teeth in a single row in each jaw; gill-membranes broadly united, free from the isthmus; eyes high up, interorbital narrow; caudal peduncle short, compressed, its least depth about 3 in head. Fins rather large; origin of dorsal over upper end of gill-opening, first spine slightly shorter than second, which is somewhat longer than the third, whose length is about 2.2 in head; no notch behind third and fourth spines, all the spines from third to fifteenth being about equal in length, the sixteenth and seventeenth being somewhat shorter, the remaining three progressively longer; soft dorsal higher, its longest ray about 1.7 in head; longest anal ray 1.7; pectoral broad, 1.25 in head, reaching anal; ventral barely reaching origin of anal; a pair of slender ocular cirri, a small supraocular one, a short, slender, nasal cirrus and a few very slender ones at the nape; scales large, not crowded anteriorly; lateral line well arched above the pectoral.

Color in alcohol: Brown, much spotted and vermiculated with darker; top of head brown, sides and under parts pale, crossed by about 5 broad, irregular brown bars; side of body with about 5 or 6 broad, dark crossbars, broader than the paler interspaces, broadest and darkest above and extending upon dorsal fin; under parts of body paler, more speckled; spinous dorsal with numerous small brown specks, a large, black ocellus on base of 3 anterior spines, and a larger one on base of last 4 dorsal spines, being chiefly on body; soft dorsal, caudal, and anal each crossed by several series of small brown spots; pectoral and ventrals pale, the pectoral with a few brown spots at base.

The above description from the type, a female, 2.5 inches long, obtained at Hucares, February 14. Three female cotypes gotten at Fajardo, February 17, and one at Culebra, February 9, agree closely with the type; 2 of these, however, show faint traces of narrow horizontal lines along lower part of side.

A male, 2.5 inches long, from Culebra, February 11, taken as one of the cotypes, may be described as follows: Head 3.5; depth 3.7; eye 3.8; snout 3.2; maxillary 3.1; mandible 2.4; interorbital 7; preorbital 6.2; scales 3–45–9; D. XX, 10; A. II, 19; P. 14; V. 2; C. 13; longest dorsal spine 2 in head, longest ray 1.4; longest anal ray 1.5; pectoral 1; ventral 1.1; caudal 1.1. Color in alcohol, tolerably uniform brown; crossbars on side very faint; longitudinal lines more evident than in the female; throat and under parts of head mottled with white and light brown; fins less speckled than in female, the soft dorsal and anal pale, almost without spots.

Another male, 2.25 inches long, from Culebra, February 11, agrees with the large specimen just described, except that the crossbars on body are more distinct.

This species most closely resembles *M. bimaculatus* Steindachner, from which it differs in the larger head, greater depth, smaller mouth, narrower interorbital, and in the color. The tips of the anal rays are not white, the soft dorsal is spotted like the caudal and anal, and there are no white spots on base of pectoral, as is said to be the case in *M. bimaculatus*.

Puerto Rico; known from the 7 specimens mentioned above, all obtained by the U. S. Fish Commission expedition to Puerto Rico.

Malacoctenus puertoricensis, EVERMANN & MARSH, Rept. U. S. Fish Com. 1899 (Dec. 19 1899), 358, Hucares, P. R. (Type, No. 49371, U.S.N.M. Coll. Evermann & Marsh.)

Page 2369. Before *Auchenopterus*, Günther, insert:

878 (a). AUCHENISTIUS, Evermann & Marsh.

Auchenistius, EVERMANN & MARSH, Rept. U. S. Fish Com. 1899 (Dec. 19, 1899), 359 (*stahli*).

This genus has the form of *Auchenopterus* and suggests that genus strongly. It differs in the absence of a lateral line, in the much smaller scales, in the absence of a notch at the front of the dorsal fin, and in the union of the membrane of the anal fin with that of the caudal.

(*αὐχήν*, nape; *ἱστίον*, sail or fin.)

2711 (a). AUCHENISTIUS STAHLI, Evermann & Marsh.

Head 5; depth 6.5; eye 4.8; snout 6; maxillary 2.8; scales about 58, about 12 in transverse series; D. XLI or XLII; A. II, 23 or 24; pectoral 2.5; ventral 2.2; caudal 1.3.

Body elongate, somewhat compressed, especially posteriorly, the dorsal and ventral outlines alike; head small, upper profile straight and descending; snout moderate, pointed; mouth large, the maxillary reaching to or beyond middle of eye; the jaws equal, heavy and projecting; teeth in lower jaw conical, short and strong, slightly recurved, in one row; teeth in upper jaw similar to those in lower, but a small patch of smaller teeth in front of jaw behind the main row; teeth on vomer; gill-membranes joined to the isthmus; nostrils with short tubes, a single flap above each eye and one on each side of nape; dorsal fin long, of spines only; last four spines somewhat longer than the preceding, forming a shallow notch, a feature lacking in the other examples; anal origin about midway between tip of snout and tip of caudal, the fin similar to dorsal in shape, but somewhat lower; membrane of dorsal and anal joined to caudal; caudal small, pointed; pectoral small, of 8 rays; ventral small, of 2 rays.

Color in spirits; Body everywhere with a very slight yellowish tinge, in some specimens a faded gray; one specimen has traces of 10 or 12 dark crossbars; fins all pale, in one case with the dorsal and anal dark-edged.

Puerto Rico; known from the type, a specimen 1.2 inches long, obtained by the U. S. Fish Commission expedition to Puerto Rico, February 1, 1899, at Ponce, and 13 cotypes, 8 from the coral and algæ on the reefs at the mouth of Culebra harbor, and 5 from Puerto Real.

("Named for Dr. A. Stahl, of Bayamon, Puerto Rico, who, under many difficulties put in his way by Spanish authorities, made important collections of natural history objects of that island.")

Auchenistius stahli, EVERMANN & MARSH, Rept. U. S. Fish Com. 1899 (Dec. 19, 1899), 359, Ponce, P. R. (Type. No. 49372, U.S.N.M. Coll. Evermann & Marsh.)

Page 2373. Before *Auchenopterus fasciatus* (Steindacher), insert:

2717 (a). AUCHENOPTERUS ALBICAUDUS, Evermann & Marsh.

Head 3.2; depth 4; eye 4; snout 4.1; maxillary 2.2; mandible 1.6; interorbital 5.3; D. XXX, 1; A. II, 17; pectoral 1.4; ventral 1.5; caudal 1.6; branchiostegals 6; scales 1-34-6.

Body rather short, compressed; dorsal outline not elevated; head moderate, not broad; snout short, pointed; mouth large, oblique, maxillary extending to below middle of eye; lips broad, prominent; a band of conical teeth on each jaw, those on side somewhat enlarged and recurved; a patch of teeth on vomer, none on palatines; gill-membranes broadly united, free from isthmus; eye large, high up; nasal, supraocular, and nuchal regions with fringed tuft-like cirri; a considerable notch between fourth and fifth dorsal spines, but not reaching base of membrane; longest anterior spine scarcely as long as those of the posterior portion; scales large, reduced anteriorly; lateral line anteriorly separated from the dorsal fin by only one scale; head naked.

Color: Uniform dark brown on head and body, no dark crossbars; dorsal brown, mottled with lighter, narrowly edged with white; a black spot upon anterior 3 or 4 spines and a large black ocellus upon posterior portion of fin between twenty-second and twenty-fourth spines; anal rather darker, with narrow white edge; caudal peduncle black, the fin abruptly white at base, the entire fin being clear white, entirely without specks; pectoral black at base, then barred with white and dark; ventral black at base, the outer two-thirds barred with black and white.

This species seems to be related to the Pacific-coast species, *Auchenopterus integripinnis*, which it closely resembles, but differs from that species in the larger scales, the deeper body, and the coloration.

Puerto Rico; known only from the type, a specimen 1.5 inches long, obtained by the U. S. Fish Commission expedition to Puerto Rico, February 4, 1899.

(*albus*, white; *cauda*, tail.)

Auchenopterus albicaudus, EVERMANN & MARSH. Rept. U. S. Fish Com. 1899 (Dec. 19, 1899), 360, Arroyo, P. R. (Type, No. 49373, U.S.N.M. Coll. Evermann & Marsh.)

2717 (b). AUCHENOPTERUS RUBESCENS, Evermann & Marsh.

Head 3 4; depth 5; eye 5; snout 3.8; maxillary 2.6; interorbital 5.8; scales 2-32-8; D. XXX, 1; A. II, 18; pectoral 1.5; ventral 2; caudal 1.4.

Body slender and compressed; head moderate, somewhat compressed above; snout pointed; mouth moderate, the jaws equal, the maxillary about reaching front of pupil; lips, especially the upper, prominent; teeth small, conical and sharp, in both jaws, in a numerous patch on front of upper jaw, fewer on sides; in lower jaw less numerous in front, a long single row of somewhat stronger teeth on sides; eye not large; a small nasal flap, and a 3- or 4-branched tentacle over eye and one at nape; scales rather large and regularly arranged; dorsal fin with a notch behind third spine, and with one unbranched soft ray at its end, the membrane joined to caudal; origin of anal under eleventh dorsal spine; lateral line as usual in *Auchenopterus.*

Color in spirits: Everywhere a nearly uniform faded pink, save breast and lower side of head, which are paler; a small, inconspicuous dark round spot on dorsal fin, at twenty-third and twenty-fourth spines, a little nearer base than margin, and made up of very small black punctulations; indications of a yellow tinge on front of dorsal and base of anal in life; fins otherwise all pale.

Puerto Rico; known only from the type, a specimen 1.3 inches long, obtained by the United States Fish Commission expedition to Puerto Rico January 27, 1899. (*rubescens*, reddening.)

Auchenopterus rubescens, Evermann & Marsh, Rept. U. S. Fish Com. 1899 (Dec. 19, 1899), 360, Puerto Real, P. R. (Type, No. 49374, U.S.N.M. Coll. Evermann & Marsh.)

2717 (e). AUCHENOPTERUS CINGULATUS, Evermann & Marsh.

Head 3; depth 4.4; eye 5; snout 4.2; maxillary 2.2; interorbital 6; scales 2-29-7; D. IV-XXIV, the longest spines 3 in head; A. II, 16, the longest ray 2.25 in head; pectoral 1.3; ventral 1.8; caudal 1.6. Body rather long and slender, strongly compressed; head large, little compressed; snout moderately sharp; mouth large, maxillary reaching posterior border of eye, the lips heavy, the jaws subequal or the lower very slightly projecting; teeth conical and sharp, in more than one row in each jaw, most numerous in front; a patch on vomer; a nasal filament, a 3- or 4-branched supraocular tentacle, and a 4-branched nuchal tentacle, the branches of the latter each with a dark dot on their anterior surface. Dorsal originating over edge of preopercle, of spines only, the second slightly longer than first; second, third, and fourth graduated, the fourth comparatively short, thus forming a notch partly separating the first 4 spines from rest of fin; dorsal membrane joined low with caudal; anal free from caudal, about as high as dorsal, its thirteenth and fourteenth rays longest; first anal spine under tenth or eleventh dorsal spine; caudal rounded, shorter than head, of about 13 rays; pectoral large, reaching anal, of 12 rays; ventrals moderate, of 2 rays, the spine not evident. Lateral line running high to eleventh dorsal spine, here abruptly decurved two rows of scales, thence median to base of caudal.

Color in spirits: Body and head pale yellow; body with 4 heavy dark-brown vertical bars, each about 4 rows of scales wide, extending on the vertical fins; membrane of anterior dorsal spines, opercle, occipital, and scapular region blotched with the same color; a dark bar backward and downward from eye across cheek, rather more than one-half width of eye; top of head between and behind eyes darkened; preorbital, maxillary, lips, and under part of head thickly punctulate with dark; dorsal and anal barred with the extensions of the wide dark body bars, and with the alternating narrower pale interspaces; caudal mottled or irregularly barred with grayish, its base with the plain pale-yellow ground color, which is sharply separated from the rest of the fin by a curved dark line; posterior half of pectoral barred with dark formed of dots on the rays, the first bar plainest; basal half of pectoral pale; ventral with basal portion dark, the rest barred like pectoral.

A pretty and strongly marked blenny, known only from Puerto Rico, where 4 specimens were obtained on the coral reefs at Ponce and 1 at Puerto Real by the U. S. Fish Commission expedition to Puerto Rico. (*cingulatus*, banded, from the conspicuous vertical bars.)

Auchenopterus cingulatus, EVERMANN & MARSH, Rept. U. S. Fish Com. 1899 (Dec. 19, 1899), 361, Ponce, P. R. (Type, No. 49375, U.S.N.M. Coll. Evermann & Marsh.)

2717 (d). AUCHENOPTERUS FAJARDO, Evermann & Marsh.

Head 3.25; depth 4.8; eye 4.2; snout 4.8; maxillary 1.7; mandible 1.5; interorbital 5.5; scales 2–37–8; B. XXIX, 1, the longest spine 2.3 in head; A. II, 17; pectoral 1.4; ventral 1.7; caudal 1.4. Body elongate, strongly compressed posteriorly; head moderate, little compressed; mouth large, the long and slender maxillary reaching beyond the posterior border of orbit; jaws subequal; teeth of upper jaw conical and sharp, in a patch in front, becoming one row posteriorly; teeth in lower jaw similar, but fewer and weaker; vomerine teeth in two series. Nasal, ocular, and nuchal tentacles present, all but the nasal about 5-branched. Dorsal origin over edge of preopercle, the first 4 spines graduated, the fourth shortest, thus forming a notch; dorsal ending with an unbranched soft ray, the joints visible under a strong lens; membrane of dorsal joined low to caudal; anal origin under eleventh dorsal spine and the decurved portion of lateral line; pectoral reaching past front of anal; ventral moderate, of 3 rays, the innermost shorter and slenderer.

Color in spirits: Body and head light reddish, becoming a little paler posteriorly; body with traces of 6 or 8 dark vertical bars extending on the fins, their margins ill defined; breast pale, 2 dark reddish bars downward and backward from eye across upper and lower edge of cheek to opercle; maxillary blotched with dark; upper lip and tips of both jaws dark; lower part of head spotted with dark; a row of about 5 small dark spots on edge of preopercle; iris pink; dorsal and anal fins gray, except for the extensions of the dark bars of the body and a few white spots on the dorsal; a distinct ocellus on the twenty-second, twenty-third, and twenty-fourth dorsal spines and their membranes; base of caudal gray, like the ground color of dorsal and anal; posterior part of caudal with gray mottlings on the rays only, this portion separated from the basal part by a space without pigment on rays or membrane, making a distinct vertical bar; pectoral and ventrals mottled. Puerto Rico.

A handsomely colored blenny, known only from the type, 1.63 inches long, collected February 17, 1899, by the the U. S. Fish Commission expedition to Puerto Rico. (Named for the type locality.)

Auchenopterus fajardo, EVERMANN & MARSH, Rept. U. S. Fish Com. 1899 (Dec. 19, 1899), 361, Fajardo, P. R. (Type, No. 49376, U.S.N.M. Coll. Evermann & Marsh.)

Page 2400. Before *Ophioblennius*, Gill, insert:

893 (a). CORALLIOZETUS, Evermann & Marsh.

Coralliozetus, EVERMANN & MARSH, Rept. U. S. Fish Com. 1899 (Dec. 19, 1899), 362 (*cardonæ*).

Body slender and strongly compressed, without scales; head large, subcylindrical, bluntly pointed; mouth large; teeth not hooked, about 8 enlarged conical ones in front of each jaw, smaller ones behind; vomer with teeth; dorsal fin with a notch between the rays and spines, the membrane connected with caudal; caudal fin rounded; pectoral large, ventrals small and inserted slightly in advance of pectorals. A strongly marked genus, conspicuous in appearance by its heavy head and thin body, probably related to *Ophioblennius*, from which it is technically separated by the absence of hooked canine teeth, the convex caudal, and the entire absence of a lateral line.

(*κοράλλιον*, coral; *ζητέω*, I seek.)

2753 (a). CORALLIOZETUS CARDONÆ, Evermann & Marsh.

Head 4; depth 5.6; eye 5; snout 4; maxillary 2; D. XVII, 11; A. 21; pectoral 1.3; ventral 1.8; caudal 1.4.

Body scaleless, slender, much compressed; head large and heavy, not compressed nor depressed; snout very short and blunt; mouth large, horizontal, low in position, the maxillary reaching far beyond the eye; eyes small, close together, placed high and well forward; teeth conical, in a patch on the front of each jaw, an outer row of about 8 teeth (4 on a side) in each jaw, much enlarged; a single row of smaller teeth on sides of each jaw; teeth on vomer; a small flap at the nostril and two short filaments above eye, one much the smaller; no appendages at the nape. Dorsal fin long and high, of slender, flexible spines, and longer soft rays, a notch between the soft and spinous portions; anal longer and lower than soft dorsal; anal and dorsal free from caudal; caudal rounded; pectoral large, wide as body, reaching anal or beyond; ventral small, inserted before pectoral, of 3 rays, the innermost very slender.

Color in spirits: Body dark red, much paler in one specimen; head everywhere inky, this color dusted upon the body, particularly on the anterior portion; a pale gray bar downward and backward across cheek; fins pale, except ventrals and front of dorsal, which have color of head; a row of small rosy spots along bases of anal rays, seemingly in the flesh; sometimes a similar fainter row along base of dorsal. Known only from Puerto Rico, where 3 specimens, each about 1 inch long, were obtained in February, 1899, by the U. S. Fish Commission expedition to that island.

(Named for Cardona, a little islet off Playa de Ponce, on the reef of which the type was collected.)

Coralliozetus cardonæ, EVERMANN & MARSH, Rept. U. S. Fish Com. 1899 (Dec. 19, 1899), 362, Cardona Islet, P. R. (Type, No. 49377, U.S.N.M. Coll. Evermann & Marsh.)

Page 2471. After *Lycenchelys paxillus* (Goode & Bean), insert the following:

2833 (a). LYCENCHELYS MURÆNA (Collett).

Head nearly 8; depth about 20; eye 4.5; D. 112 (including one-half of caudal, 118); A. 95 (101); P. 13. Body everywhere scaled, head and fins naked; ventrals comparatively close together, 6 times length of pectoral; jaws with teeth in a single series. Lateral line present, but difficult to trace in its entirety; from upper angle of gill-opening a series of rather closely placed, very small pores (connected by a narrow line) descends in a curve to a short distance behind vent; after having reached nearly to base of anal, it runs for a short distance nearly horizontally, whereupon it ceases, or can not be followed in the same direction with certainty; another lateral line, however, begins about over the vent, and runs horizontally along median line, becoming obsolete toward end of tail; the pores herein are very small and more widely separated, and can be seen only by close observation; the short whitish line which runs through each pore forms here no accompanying line. Length 7 to 11 inches. North Atlantic. Recently taken by the *Ingolf* expedition in Denmark Strait.

Lycodes murœna, COLLETT, Lorh. Selsk. Christ., No. 14, 15, 1878, off Traenen, in Helgeland, Norway; Lütken, *Ingolf* Expedition, 20, 1898.
Lycenchelys murœna, GOODE & BEAN, Oceanic Ichth., 309, 1896.

Page 2578. *Chalinura simula*, Goode & Bean, was taken by the *Ingolf* in Denmark Strait in 912 to 1,236 fathoms.

Page 2587. Before *Cœlorhynchus*, Giorna, insert the following:

2963 (a). MACROURUS INGOLFI, Lütken.

The head is contained about 5 times in the total length. The superior or frontal surface of the snout is separated from the inferior or more forwardly directed part by a well-developed crest or edge, terminating in 3 spinose osseous tubercles, 1 directly in the middle and 1 on each side, close before the naked spot, where the nostrils have their place, and continued both above and below the orbits. The broadly triangular snout is prolonged fairly over and before the mouth, which is relatively little, the corners of the mouth falling in a line with the anterior margin of the middle of the orbits. The eyes are large, their diameter surpassing the breadth of the front between the eyes. The teeth form a fine card in both jaws. The head is scaled with the exception of the gill-membrane, the isthmus, and its foremost superior margin, and almost the whole lower surface. The naked part of the snout is handsomely embroidered with rows of slime glands. The first dorsal, counting 11+9 rays, is singularly high and its longest (second) ray is serrate and as long as the head. The second dorsal begins much forward, its foremost rudimentary rays may be followed until not far from the posterior margin of the first dorsal fin. The pectoral contains 20 rays, and the ventrals, whose external ray tapers to a fine thread and reaches a long stretch beyond the anus, have 8 rays. It may also be remarked that the tail, as in other Macrurians, is really pointed behind, but in several specimens has lost a shorter or longer part; but the wound has healed, and on the thus truncated point of the tail is developed a distinct caudal fin, a phenomenon which is also observed in some specimens of the preceding species. The scales show distinct rows of thorns, not however so much projecting as in *M. goodei.* (Lütken.)

Several specimens taken by the *Ingolf* about Iceland and in Denmark Strait.

Macrurus ingolfi, LÜTKEN, Ichth. Results Danish *Ingolf* Exped., 27, 1898, south of Iceland

Page 2622. After *Hippoglossina bollmani*, Gilbert, insert the following:

2988 (a). HIPPOGLOSSINA SABANENSIS, Boulenger.

Head 4; depth 1¾; eye 5; width of mouth 2¾ in head; maxillary reaching posterior third of eye; teeth small, more strongly developed on right side; eyes moderately large, the lower a little in advance of the upper; interorbital space tectiform, scarcely half the width of eye. D. 76; A. 63. Gill-rakers very short, tuberculous, 6 on lower arm of first gill-arch; dorsal commencing above anterior third of upper eye, its longest ray 2 in head; left pectoral a little longer than right, 1⅖ in head; left ventral twice as long as right, equaling the head; caudal a little shorter than head, its free edge forming a wide angle, the middle rays more than half longer than the outer; depth of caudal peduncle twice it length; scales 33–110–40, strongly ciliate on both sides; lateral line strongly arched above the pectoral. Deep gray brown; 3 large black ocelli bordered with bluish, 2 superposed on middle of body, equally distant, between lateral line and vertical fin, the third on lateral line a little in front of caudal peduncle; pectoral yellowish, ventrals blackish. Length 230 mm. One specimen from Rio Sabana, Darien. (Boulenger.) (*sabanensis*, from the Rio Sabana.)

Hippoglossina sabanensis, BOULENGER, Bollettino dei Mus. di Zool. ed. Anat. Comp. della Univ. di Torino, Vol. XIV, No. 346, 4, April 29, 1899, Rio Sabana, Darien. (Coll. Dr. Enrico Festa.)

Page 2789. *Villarius*, Rutter=*Haustor*, Jordan & Evermann. All species of *Ameiurus* have villi.

Page 118. Dr. Albert Günther has recently critically studied the Linnæan type specimens of American fishes in the possession of the Linnæan Society of London, and the results are published in the proceedings of that society for May 24, 1899.

These studies of Dr. Günther necessitate the following changes from the names adopted by us in the earlier parts of this work: The Gaff-Topsail Catfish becomes

161. FELICHTHYS FELIS (Linnæus).

The species called by us *Hexanematichthys felis* (Linnæus) (p. 128) becomes

186. GALEICHTHYS MILBERTI (Cuvier & Valenciennes).

The Red Hind, given by us as *Epinephelus maculosus* (p. 1158), becomes

1553. EPINEPHELUS GUTTATUS (Linnæus).

The Spotted Jewfish, given as *Promicrops guttatus* (p. 1162), becomes

1557. PROMICROPS ITAIARA (Lichtenstein).

Page 261. After *Notropis heterodon* (Cope), insert:

406 (a). NOTROPIS CALIENTIS Jordan & Snyder.

Head 3.66 in length; depth 3.33; eye 4 in head; snout 4; interorbital space 2.66; depth of caudal peduncle 2.40; height of dorsal 4.66 in length; anal 5.75; length of pectoral 5.66; ventral 6; caudal 3.83; scales in lateral line 33; between dorsal and occiput 15; between dorsal and ventral fins 10; D. 8; A. 7. Body deep and wide, deepest part anterior to insertion of dorsal; caudal peduncle long and slender; snout blunt, rounded; mouth oblique; jaws equal; maxillary reaching to a vertical from posterior nostril. Teeth 4–4, slender, hooked, grinding surface narrow, absent on smallest tooth. Gill-rakers short, blunt; 9 on first arch. Intestinal canal short, with but 1 convolution; peritoneum white, scales large, not notably deeper than long; lateral line incomplete, extending only as far as posterior edge of pectoral. Dorsal fin rounded, the second, third, and fourth rays longest; anal fin similar in shape; ventral rounded, extending to vent, inserted directly under dorsal; pectoral rounded; caudal forked, the lobes rounded.

Color silvery, an indefinite dark band extending from tip of snout to end of caudal peduncle; the band distinct on snout and caudal peduncle, broader and almost obsolete on middle of body; top of head and a narrow band on median dorsal part of body dark; ventral parts of body immaculate, except a narrow, dark band extending along base of anal and ventral part of caudal peduncle; chin white; scales on upper parts with dark edges; dorsal and caudal fins slightly dusky; other fins lighter.

This species is of small size, the mature males measuring about 34 mm. in length of body; the females 43. The males are more slender and have a little less dark color on the body. The affinities of *Notropis calientis* are with *Notropis cayuga*, *jordani*, and others of the subgenus *Chriope*. The species may be distinguished by its small eye, short, rounded snout, deep body, short lateral line, and rounded fins. (Jordan & Snyder.)

Lake Chapala basin, Mexico.

Notropis calientis, JORDAN & SNYDER. Bull. U. S. Fish Com. 1899 (1900), 122, Rio Verde, at Aguas Calientes, Mexico. (Type, No. ——, L. S. Jr. Univ. Mus. Coll. J. O. Snyder.)

Page 965. The generic name *Rhombus* was first used by Humphreys in 1797 for a genus of mollusks, and can not therefore be used in fishes. Its place in fishes will be taken by *Peprilus* Cuvier (1817).

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The following index includes only those names which occur in the "Additional Addenda" found in the present volume. An index complete for the three other parts is given in Part III.

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Blennicottus embryum	CCCIII, 734	2016 2864
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fasciatus, Achirus	CCCLXXXVII, 948	2700
favosus, Bathygadus	CCCLXVII, 908	2565
Blennius	CCCXXXVIII, 820	2380
Felichthys felis	XXIII, 52	118
felis, Felichthys	XXIII, 52	118
ferox, Alepisaurus	XCV, 257	595
Stomias	XCIV. 253	588
ferruginea, Limanda	CCCLXXVII. 929	2644
fimbria, Anoplopoma	CCLXXIX, 674	1862
Flammeo marianus	CXXXI. 359	852 2871
flavescens, Perca	CLXV, 435	1023
flavidus, Apodichthys	CCCXLI, 830	2411
Aulorhynchus	CXX. 323	754
Congrellus	LVIII, 150	357
flavus, Noturus	XXVII. 63	144
floræ, Neoliparis	CCCXV, 762	2111
floridæ, Jordanella	CXII, 298	677
Fodiator acutus	CXVII. 315	728
fœtens, Synodus	LXXXVIII. 236	538
fonticola, Microperca	CLXXVII. 470	1104
fontinalis. Salvelinus	LXXXII, 218	506
forficata, Elanura	CCLXXXIX, 701	1930
formosa, Heterandria	CXIV, 302	687
formosum, Diplectrum	CXCI, 502	1207
francisci, Gyropleurodus	III, 9	20
frenatus, Brachyistius	CCXXIX, 580	1499
Sarritor	CCCX, 751	2073
frigidus, Lycodes	CCCL, 856	2465
fulvus, Physiculus	CCCLXIII. 896	2547
punctatus, Bodianus	CLXXXII. 481	1146
funduloides, Fundulus	CVI. 282	650
Fundulus albolineatus	CV, 281	649

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chrysotus	CVII, 287	655
diaphanus	CIII, 275, 275*a*	645
funduloides	CVI, 282	650
goodei	CIX, 291	664 2831
heteroclītus	CII, 273	640
jenkinsī	CVI, 284	651
luciæ	CVII. 286	654
macdonaldi	CVI, 283	651
majalis	CI, 271, 271*a*. 271*b*	639
notatus	CVIII, 289	659
nottii	CVIII. 288	656
ocellarīs	CII, 274	642
pallidus	CII, 272	638
pulvereus	CVII, 285	652
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semīnolis	CIV, 277	647
stellīfer	CV, 279	648
zebrinus	CIII, 276	646
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Phanerodon	CCXXX, 583	1506
furcifer, Paranthias	CXCII, 504	1221
Furcimanus dīapterus	CCCLI, 861	2472
furiosus, Schīlbeodes	XXIX, 69, 69*a*, 69*b*	149
fusīformis, Boleichthys	CLXXVII, 469	1101
Gadus callarīas	CCCLXI, 891	2541
gairdneri, Salmo	LXXXI, 215	497
Gaīrdropsarus argentatus	CCCLXVII, 906	2559
galacturus, Notropīs	XLVIII, 122	279
galeatus, Gymnocanthus	CCCI, 730	2010
Galeīchthys azureus	XXIV, 55	2775
gilberti	XXIV, 54	2773
milberti	XXIII, 53	128
Galeorhinus zyopterus	IV, 15	32
Gambusīa affinis	CXIII, 299, 299*a*	680
Garmannia paradoxa	CCCXXVII, 790	2232
Garrupa nigrita	CLXXXIV, 486	1161
Gasterosteus aculeatus	CXIX, 320	747
cataphractus	CXIX, 321	749
Gastrostomus bairdiī	LXVII, 176	406
gemma, Hypoplectrus	CLXXXIX, 497	1193
gemmīfer, Astronesthes	XCIII, 251	586
Germa alalunga	CXXXIV, 367	871
Gerres olisthostomus	CCXVIII, 557	1376
Gibbonsia elegans evides	CCCXXXVI, 815	2352
gibbosus, Eupomotīs	CLXI, 429	1009
gilberti, Galeichthys	XXIV, 54	2773
Schīlbeodes	XXVIII, 67, 67*a*, 67*b*	148
Sebastodes	CCLXXV, 665	1823
Ulocentra	CLXIX, 446	1049
Gīlbertidia sīgolutes	CCCVI, 741	2028
gilli, Avocettina	LIX, 154, 154*a*, 154*b*	367 2801
Bassogīgas	CCCLVII, 879	2515
Cetomīmus	XC, 241	549
Lipogenys	XCIX, 266	619
Neobythites	CCCLVII, 877	2512
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glacialis, Liopsetta	CCCLXXX, 935	2649
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glaucus, Trachinotus	CXLVI, 395	940
glesne, Regalecus	CCCLXX, 916	2596
globosa, Lyosphæra	CCLXVII, 649, 649*a*	1751
gloriosus, Enneacanthus	CLVIII, 422	993
Gnathypops maxillosa	CCCXXXI, 801	2284
gobioides, Hypsicometes	CCCXXXIII, 805	2294
Gobius hastatus	CCCXXVI, 788	2229
oceanicus	CCCXXVII, 789, 789*a*	2230
stigmaticus	CCCXXVI, 787	2224
Goodea atripinnis	CXIV, 301	685
goodeī, Fundulus	CIX, 291, 664	2831

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gorbuscha, Oncorhynchus	LXXVII, 205	478
gracile, Peristedion	CCCXXII, 776	2179
gracilis, Aldrovandia	XCVIII, 263	610
beryllina, Menidia	CXXIV, 338	797
Photonectes	XCV. 255	591
Platygobio	LIV, 139	326
grallator, Benthosaurus	LXXXIX, 237	543
Gramma loreto	CXCIII, 508	1229
grammaticus, Chlorichthys	CCXLI, 604	1610
Grammatostomias dentatus	XCIV, 254	590
Grammicolepis brachiusculus	CLII, 410	974
grandicornis, Scorpæna	CCLXXVIII, 671	1850
greeni, Neoliparis	CCCXVI. 763, 763*a*	2112
griseus, Catostomus	XXXI, 75	175
Hexanchus	II, 8	19
grunniens, Aplidonotus	CCXXVI, 574	1484
guacamaia, Pseudoscarus	CCXLVI, 617	1657
gulosus, Chænobryttus	CLVII, 421	992
gunnelliformis, Asternopteryx	CCCXLIII, 834	2420
gunnellus, Pholis	CCCXLII. 832	2419
guntheri, Aspidophoroides	CCCXII, 755, 755*a*, 755*b*	2090
Hadropterus	CLXVII, 439	1033
Hoplopagrus	CXCVI, 513	1244
guttatus, Percopsis	CXXI, 329	784
guttifer, Ophichthus	LXIV, 168	383
Gymnelis viridis	CCCLII. 864–864*c*	2479
Gymnocanthus galeatus	CCCI. 730	2010
pistilliger	CCCI. 729, 729*a*, 729*b*	2006
Gymnosarda alleterata	CXXXIV. 366	869
Gyropleurodus francisci	III, 9	20
Hadropterus aspro	CLXVI. 438	1032
evides	CLXVII, 440	1036
guntheri	CLXVII, 439	1033
macrocephalus	CLXVI, 437	1031
scierus	CLXVII, 441	1037
Hæmulon album	CCIII, 528	1295
macrostomum	CCIV, 529	1296
parra	CCIV, 530	1297
plumieri	CCV, 532	1304
sciurus	CCV, 531	1303
harengus, Clupea	LXX, 185	421
Harriota raleighana	XIX. 42	96
hastatus, Gobius	CCCXXVI, 788	2229
helleri, Xiphophorus	CXV, 304	701
Hemianthias vivanus	CXCII, 505	1223
Hemicaranx amblyrhynchus	CXLI, 386	912
hemilepidotus, Hemilepidotus	CCXC, 704, 704*a*, 704*b*	1935
Hemilepidotus hemilepidotus	CCXC, 704. 704*a*, 704*b*	1935
jordani	CCXC, 703	1934
Hemirhamphus brasiliensis	CXVII, 313	722
Hemitripterus americanus	CCCV, 738	2023
hemphillii, Stathmonotus	CCCXL, 827	2407
henshawi, Salmo clarkii	LXXIX, 208	493 2819
hentz, Hypsoblennius	CCCXXXIX, 823	2390
Hermosilla azurea	CCXIX, 558	1383
Heterandria formosa	CXIV, 302	687
heteroclitus, Fundulus	CII, 273	640
Heterodontus philippii	III, 10	......
Hexagrammos decagrammus	CCLXXX, 676, 676*a*	1867
octogrammus	CCLXXX, 677	1869
otakii	CCLXXXI, 680	1867
stelleri	CCLXXXI, 678	1871
superciliosus	CCLXXXI, 679	1872
Hexanchus griseus	II, 8	19
Hiodon selenops	LXVIII, 181	414
tergisus	LXVIII, 180	413
Hippocampus hudsonius	CXXI, 327	777
zosteræ	CXXI, 328	778
Hippoglossoides elassodon	CCCLXXII, 920	2615
platessoides	CCCLXXII, 919	2614
Hippoglossus hippoglossus	CCCLXXI, 918	2611

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hippoglossus, Hippoglossus	CCCLXXI, 918	2611
hippos, Caranx	CXLI, 387	920
hippurus, Coryphæna	CXLIX, 402	952
hirundo, Azurina	CCXXXIII, 588	1544
Leiocottus	CCCII, 731	2011
hispidus, Monacanthus	CCLIX, 634	1715
Histiobranchus infernalis	LVII, 147	352
Histiocottus bilobus	CCCIII, 735	2018
Holacanthus tricolor	CCLIII, 625	1684
holbolli, Ceratias	CCCLXXXIX, 954	2729
holbrookii, Diplodus	CCXVII, 555, 555*a*	1362
Holocentrus ascensionis	CXXXI, 358	848
hopkinsi, Hynnis	CXLIII, 391	933
Sebastodes	CCLXXII. 659	1789
hoplomystax, Sparisoma	CCXLIV, 611	1632
Hoplopagrus guntheri	CXCVI, 513	1244
Hoplostethus mediterraneus	CXXX, 354	837
Hoplunnis schmidtii	LVIII, 151	361
hospes, Mugil	CXXVII, 345	814
hudsonius, Hippocampus	CXXI, 327	777
Notropis	XLVII, 119	269
saludanus, Notropis	XLVIII, 120	270
humboldtianum. Chirostoma	CXXIII, 334	793
humeralis, Paralabrax	CXC, 499	1196
Sardinella *	LXXIII, 193	431
Hybopsis æstivalis marconis	LIII, 136	316
altus	LIV, 138	321
watauga	LIII, 137	319
Hydrolagus colliei	XIX, 41	95
hydrophlox, Leuciscus	XLII, 104	238
Hymenocephalus cavernosus	CCCLXIX, 912	2580
Hynnis hopkinsi	CXLIII, 391	933
Hypoclydonia bella	CLXXIX, 475	1115
Hypocritichthys analis	CCXXX, 582	1500
Hypohomus aurantiacus	CLXVIII, 443	1043
spilotus	CLXVIII, 442	1040
Hypomesus olidus	LXXXVII, 231	525
pretiosus	LXXXVI, 230	525
Hypoplectrus gemma	CLXXXIX, 497	1193
unicolor nigricans	CLXXXIX, 496	1193
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Hyporhamphus roberti	CXVII, 312	721
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Hypsicometes gobioides	CCCXXXIII, 805	2294
Hypsoblennius hentz	CCCXXXIX, 823	2390
ionthas	CCCXXXVIII, 822	2388
Hypsurus caryi	CCXXXI. 585	1508
Hypsypops rubicundus	CCXXXIV, 591	1564
Hysterocarpus traski	CCXXVII, 577	1496
hystrix, Diodon	CCLXVI, 647	1745
Icelinus borealis	CCLXXXIV, 687	1896
Icelus canaliculatus	CCLXXXVI. 693	1917
spiniger	CCLXXXVI, 692	1914
Icichthys lockingtoni	CLI, 406	969
Ictalurus anguilla	XXV. 57	2788
furcatus	XXV, 56	134
punctatus	XXV, 58	134
Ictiobus cyprinella	XXX, 70	163
Ilyophis brunneus	LVI, 145	350
inermis, Rabirubia	CXCIX. 519	1274
infernalis, Histiobranchus	LVII, 147	352
infirmus, Novaculichthys	CCXLI, 606	1616
Inopsetta ischyra	CCCLXXVI, 927	2641
inornatus, Microlepidotus	CCX, 542	1341
insignis, Schilbeodes	XXVIII, 66	147
interruptus, Archoplites	CLVII, 420	991
intertinctus, Mystriophis	LXV, 170	386
intronigra, Dicrolene	CCCLVIII, 882	2522
Ioglossus calliurus	CCCXXIII, 780	2193
ionthas, Hypsoblennius	CCCXXXVIII. 822	2388
ios. Clevelandia	CCCXXVIII, 793	2254

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* Plate by error labeled *Sardinella sardina*.

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iowæ, Etheostoma	CLXXIV, 460	1083
Ipnops murrayi	LXXXIX, 239	546
irideus, Salmo	LXXXI, 216	500
Iridio bivittatus	CCXXXIX, 601	1595
dispilus	CCXL, 602	1597
radiatus	CCXXXIX, 600	1590
ischyra, Inopsetta	CCCLXXVI, 927	2641
Istiophorus nigricans	CXXXVII, 376	891
Isurus dekayi	VI, 21	48
itaiara, Promicrops	CLXXXV, 487, 487*a*, 487*b*	1162
jaok, Myoxocephalus	CCXCVI, 719	1977
japonicus, Arctoscopus	CCCXXXIII, 807	2297
jenkinsi, Fundulus	CVI, 284	651
jessiæ, Etheostoma	CLXXIV, 461	1084
Xenocys	CCII, 526	1285
Jordanella floridæ	CXII, 298	677
jordani, Caulophryne	CCCXCI, 957	2735
Eslopsarum	CXXIII, 335	793 2840
Etheostoma	CLXXIII, 458	1079
Hemilepidotus	CCXC, 703	1934
Mycteroperca	CLXXXVIII, 493	1176
Pantosteus	XXXI, 73	171
Ronquilus	CCCXXXII, 803	2289
Jordania zonope	CCLXXXII, 683	1884
Joturus pichardi	CXXVIII, 348	821
juliæ, Etheostoma	CLXXVI, 466	1093
kanawha, Notropis	XLVI, 115	264
Kathetostoma albigutta	CCCXXXIV, 809, 809*a*	2312
kendalli, Verma	LX, 159, 159*a*	375
Kirtlandia vagrans	CXXIV, 336	794
klamathensis, Agosia	LII, 133	3144
Cottus	CCXCIII, 710	1955
Kuhlia rupestris	CLXIII, 432	432
Kyphosus sectatrix	CCXIX, 559	1387
Labichthys carinatus	LIX, 155	368
elongatus	LIX, 156	369
lacera, Lagochila	XXXVIII, 94, 94*a*	199
Lachnolaimus maximus	CCXXXVII, 597	1579
Lactophrys bicaudalis	CCLXII, 639, 639*a*, 639*b*	1723
tricornis	CCLXI, 638	1724
trigonus	CCLXIII, 640, 640*a*	1723
triqueter	CCLXI, 637	1722
lævigatus, Lactophrys	CCLXIII, 641	1728
Lagocephalus lævigatus	CCLXIII, 641	1728
Lagochila iacera	XXXVIII, 94, 94*a*	199
Lagodon rhomboides	CCXV, 552	1358
lalandi, Seriola	CXL, 382	903
lamia, Carcharhinus	V, 17	38
Lamna cornubica	VI, 22	49
Lampadena speculigera	XCI, 244	561
Lampanyctus crocodilus	XCI, 243	558
Lampetra aurea	II, 5	13
spadicea	II, 6	13
lampetræformis, Lumpenus	CCCXLIV, 840	2438
lanceolatus, Eques	CCXXVI, 575	1489
Larimus argenteus	CCXXI, 565	1421
laticeps, Megalocottus	CCXCIX, 725, 725*a*	1988
latifrons, Anarhichas	CCCXLVI, 845	2446
latipinnis, Catostomus	XXXI, 74	174
latus, Caranx	CXLII, 389	921
Leiocottus hirundo	CCCII, 731	2011
leiopomus, Cottus	CCXCIV, 712	1962
Leiostomus xanthurus	CCXXIII, 569	1458
Lemonema barbatulum	CCCLXVI, 904	2556
melanurum	CCCLXVI, 905	2557
lentiginosus, Rhinobatus	VIII, 28; IX, 28*a*, 28*b*	62
lepidogenys, Etheostoma	CLXXIV, 462	1087
Lepidopsetta bilineata	CCCLXXVI, 928	2643
Lepidopus caudatus	CXXXVI, 373	886
Lepisosteus platostomus	XXII, 49	110
tristœchus	XXII, 50	111
Lepomis auritus	CLIX, 425, 425*a*	1001

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Lepomis megalotis	CLX, 426	1002
pallidus	CLX, 427	1005
Lepophidium marmoratum	CCCLIII, 866	2482
profundorum	CCCLIII, 867	2484
Leptocephalus caudilimbatus	LVII, 149	355
conger	LVII, 148	354
Leptocottus armatus	CCCII. 732	2012
Leptops olivaris	XXVII, 62	143
lepturus, Anarhichas	CCCXLVII. 847	2447
Trichiurus	CXXXVII, 375	889
Letharchus velifer	LXI, 160	375
Lethotremus muticus	CCCXIII, 758	2101
vinolentus	CCCXIV, 759	2101
Leuciscus balteatus	XLII, 105, 105*a*	238
bicolor	XLI, 102	232
hydrophlox	XLII, 104	238
lineatus	XLI, 103	232
siuslawi	XLIII, 106	2797
Leuroglossus stilbius	LXXXVII, 233	527
Limanda aspera	CCCLXXVII, 930	2645
beanii	CCCLXXVIII, 932	2646
ferruginea	CCCLXXVII, 929	2644
proboscidea	CCCLXXVIII, 931	2645
lineatus, Achirus	CCCLXXXVI, 947	2697
Leuciscus	XLI. 103	232
Roccus	CLXXX, 478	1132
Liopsetta glacialis	CCCLXXX, 935	2649
putnami	CCCLXXX, 936	2650
liorus, Chasmistes	XXXIV. 85	183
Liparis agassizii	CCCXVII. 765	2121
cyclopus	CCCXVI, 764, 764*a*	2118
dennyi	CCCXVII, 766. 766*a*	2124
Lipogenys gillii	XCIX. 266	619
Lobotes surinamensis	CXCIV, 510	1235
lockingtoni, Icichthys	CLI, 406	969
longispathum, Peristedion	CCCXXI, 775	2178
Lophius piscatorius	CCCLXXXVIII, 952	2713
Lophogobius cyprinoides	CCCXXVI, 786	2209
Lophopsetta maculata	CCCLXXXII, 938	2660
loreto, Gramma	CXCIII. 508	1229
Lota maculosa	CCCLXIV, 897	2550
Lotella maxillaris	CCCLXIII, 895	2546
Lucania parva	CIX, 292	665
luciæ, Fundulus	CVII, 286	654
lucida, Æthoprora	XCII, 246	565
lucius, Lucius	C, 269, 269*a*	628
Lucius lucius	C, 269, 269*a*	628
masquinongy	C, 270	629
Lumpenus lampetræformis	CCCXLIV, 840	2438
mackayi	CCCXLIV, 839	2436
lumpus, Cyclopterus	CCCXIII. 757	2096
lupus, Anarhichas	CCCXLVII. 846	2446
Lycenchelys paxillus	CCCLI, 860–860d	2471
verrillii	CCCLI. 859	2470
Lycodalepis polaris	CCCL, 857	2468
turneri	CCCL, 858	2469
Lycodapus dermatinus	CCCLIV, 870	2492
Lycodes frigidus	CCCL. 856	2465
perspicillum	CCCL, 855	2465
reticulatus	CCCXLIX, 854	2465
zoarchus	CCCXLIX, 853	2464
Lycodontis moringa	LXV. 171	395
Lycodonus mirabilis	CCCLII. 862	2474
Lyconectes aleutensis	CCCXLVI, 844	2444
Lyconema barbatum	CCCLII, 863	2474
Lyosphæra globosa	CCLXVII, 649, 649*a*	1751
Lythrulon opalescens	CCVII, 536	1312
macarellus, Decapterus	CXL, 383	909
macdonaldi, Fundulus	CVI, 283	651
Nannobrachium	XCI. 245	563
Notropis	XLIX, 123	284
Salmo clarkii	LXXXI, 214	497 2819
macellus, Prionistius	CCLXXXIX, 700	1928

Genera and species.	Plate and figure.	Text page.
mackayi, Lumpenus	CCCXLIV, 839	2436
mackenzii, Stenodus	LXXVII, 204	474
macrocephalus, Hadropterus	CLXVI, 437	1031
macrocheilus, Catostomus	XXXIII, 81	178
macrochir, Aldrovandia	XCVIII, 262	609
macrognathum, Opisthognathus	CCCXXXI, 800, 800*a*	2281
macrolepis, Pontinus	CCLXXVIII, 672	1855
macrophthalmus, Aprion	CCI, 523	1280
macrops, Citharichthys	CCCLXXXV, 944	2684
macropterus, Centrarchus	CLV, 417	988
macrostomum, Hæmulon	CCIV, 529	1296
maculata, Lophopsetta	CCCLXXXII, 938	2660
maculatofasciatus, Paralabrax	CXC, 498	1196
maculatus, Aulostomus	CXX, 324	754
Cryptacanthodes	CCCXLV, 843	2443
Dormitator	CCCXXIV, 782	2196
Notorhynchus	II, 7	17
Scomberomorus	CXXXIV, 368	874
Spheroides	CCLXIV, 644	1733
Upeneus	CXXXII, 362	858
maculosa, Lota	CCCLXIV, 897	2550
maculosus, Oligocottus	CCCII. 733	2013
madeirensis, Ceratoscopelus	XC, 242	557
mæandricus, Caularchus	CCCXXXV, 812	2328
magistralis, Epinnula	CXXXV, 371	880
majalis, Fundulus	CI, 271, 271*a*, 271*b*	639
Malacosteus niger	XCV, 256	593
malardi, Uraleptus	CCCLXII, 894	2545
maliger, Sebastodes	CCLXXIV, 664	1822
Mallotus villosus	LXXXV, 225	520
malma, Salvelinus	LXXXII, 219	507
manatinus, Barathrodemus	CCCLVII, 880	2517
Mancalias shufeldti	CCCXC, 955	2730
Manta birostris	XVIII, 39	92
marconis, Hybopsis æstivalis	LIII, 136	316
marginata, Rissola	CCCLIII, 868	2489
marginatus, Neobythites	CCCLVII, 878	2515
Symphurus	CCCLXXXVII, 949	2706
marianus, Flammeo	CXXXI, 359	852 2871
marinus, Petromyzon	I, 3	10
Sebastes	CCLXVIII, 652	1760
marmoratum, Lepophidium	CCCLIII, 866	2482
marmoratus, Scorpænichthys	CCLXXXIII, 685	1889
masquinongy, Lucius	C. 270	629
maxillaris, Lotella	CCCLXIII, 895	2546
maxillingua, Exoglossum	LIV, 140	327
maxillosa, Gnathypops	CCCXXXI, 801	2284
maximus, Cetorhinus	VII, 23	51
Lachnolaimus	CCXXXVII, 597	1579
meadiæ, Ulocentra	CLXIX, 447	2852
meanyi, Ruscarius	CCLXXXV, 690	1908
Medialuna californiensis	CCXX, 560	1391
mediocris, Pomolobus	LXXI, 188	425
mediterraneus, Hoplostethus	CXXX, 354	837
medusicola, Caranx	CXLIII, 390	924
medusophagus, Schedophilus	CLI, 407	970
Megalocottus laticeps	CCXCIX, 725, 725*a*	1988
platycephalus	CCXCIX, 724, 724*a*	1987
megalotis, Lepomis	CLX, 426	1002
Melanogrammus æglefinus	CCCLXI, 892, 892*a*	2542
melanops, Minytrema	XXXVI, 90	187
Sebastodes	CCLXIX, 654	1782
melanostictus, Psettichthys	CCCLXXIII, 921	2618
Melanostigma pammelas	CCCLII, 865	2479
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microlepis, Mycteroperca	CLXXXVIII, 494	1177
Microperca fonticola	CLXXVII, 470	1104
Micropogon undulatus	CCXXIV, 570	1461
microps, Caulolatilus	CCCXXX, 799	2277
Micropterus dolomieu	CLXII, 430, 430*a*	1011
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Pleurogrammus	CCLXXIX, 675	1864
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narinari, Ætobatus	XV, XVI, 37, 37*a*	88
Naucrates ductor	CXXXIX, 379	900
naucrates, Echeneis	CCCXXIX, 796	2269
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Nematistius pectoralis	CXXXVIII, 377	895
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Neoliparis callyodon	CCCXIV, 760, 760*a*	2110
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Chiasmodon	CCCXXXII, 804	2291
Malacosteus	XCV, 256	593
Myoxocephalus	CCXCVIII, 723	1985
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oculatus, Etelis	CXXVIII, 350	830
Ocyurus chrysurus	CXCIX, 520	1275
Ogcocephalus vespertilio	CCCXCII, 958, 958*a*, 958*b*	2737
Ogilbia cayorum	CCCLV, 873	2503
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olivaris, Leptops	XXVII, 62	143
olmstedi, Boleosoma nigrum	CLXXI, 451	1057
omostigmum, Otophidium	CCCLIV, 869	2490
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Orthopristis chrysopterus	CCX, 541	1338
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Otrynter caprinus	CCXI, 543	1345
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Ovoides setosus	CCLXV, 646	1739
Oxylebius pictus	CCLXXXII, 682	1878
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paradoxa, Garmannia	CCCXXVII, 790	2232
paradoxus, Psychrolutes	CCCVI, 740	2026
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maculatofasciatus	CXC, 498	1196
Paralepis coregonoides	XCVI, 260	602
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parmatus, Setarches	CCLXXIX, 673	1860
parra, Hæmulon	CCIV, 530	1297
parræ, Clepticus	CCXXXVIII, 599	1586
paru, Peprilus	CL, 404	965
parva, Lucania	CIX, 292	665
paxillus, Lyceuchelys	CCCLI, 860, 860*a*, 860*b*, 860*c*, 860*d*	2471
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pectoralis, Dallia	XCIX, 267	621
Nematistius	CXXXVIII, 377	895
pellucida clara, Ammocrypta	CLXXII, 454	1063
Pempheris mulleri	CLIII, 412	978
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Peprilus paru	CL, 404	965
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Percopsis guttatus	CXXI, 329	784
Peristedion gracile	CCCXXII, 776	2179
longispathum	CCCXXI, 775	2178
miniatum	CCCXXI, 774	2178
platycephalum	CCCXXII, 777, 777*a*	2180
perplexus, Cottus	CCXCIII, 709	1955
perspicillum, Lycodes	CCCL, 855	2465
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Phanerodon furcatus	CCXXX, 583	1506
phasganorus, Notacanthus	XCVIII, 265	616
Phenacobius uranops	LI, 130	304
phenax, Mycteroperca falcata	CLXXXVIII, 495	1185
philadelphicus, Centropristes	CXCI, 501	1201
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Philypnus dormitor	CCCXXIV, 781	2194
Pholis dolichogaster	CCCXLII, 831	2416
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Physiculus fulvus	CCCLXIII, 896	2547
pichardi, Joturus	CXXVIII, 348	821
pictus, Chaunax	CCCLXXXIX, 953	2726
Oxylebius	CCLXXXII, 682	1878
pigmentarius, Apogon	CLXXVIII, 472	1109
Pimelometopon pulcher	CCXXXVIII, 598	1585
pingeli, Triglops	CCLXXXVII, 696	1923
pinnatus, Synaphobranchus	LVI, 146	351
pinniger, Sebastodes	CCLXXIII, 661	1793
piscatorius, Lophius	CCCLXXXVIII, 952	2713
pisonis, Eleotris	CCCXXV, 783	2200
Pisoodonophis cruentifer	LXII, 163	377
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Pleurogrammus monopterygius	CCLXXIX, 675	1864
Pleuronectes quadrituberculatus	CCCLXXIX, 934	2648
Pleuronichthys decurrens	CCCLXXV, 926	2637
plumieri, Hæmulon	CCV, 532	1304
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accipiter	CCCVIII, 745, 745*a*	2055
veternus	CCCIX, 747, 747*a*	2063
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poeyi, Pempheris	CLIII, 413	979
Pogonias chromis	CCXXV, 573	1482
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Pollachius virens	CCCLIX, 886	2534
polyacanthocephalum, Bryostema	CCCXLI, 828	2408
polyacanthocephalus, Myoxocephalus	CCXCVI, 718	1976
Polydactylus octonemus	CXXVIII, 350	830
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Porichthys porosissimus	CCCXXXV, 811	2319
Porogadus miles	CCCLVIII, 881	2520
Poronotus triacanthus	CL, 405	967
porosissimus, Porichthys	CCCXXXV, 811	2319
pottsii, Etheostoma	CLXIII, 459	1082
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profundorum, Lepophidium	CCCLIII, 867	2484
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Promicrops itaiara	CLXXXV, 487, 487*a*, 487*b*	1162
Pronotogrammus multifasciatus	CXCII, 506	1226
proridens, Calamus	CCXIII, 547	1350
proximus, Microgadus	CCCLX, 889	2539
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Psychromaster tuscumbia	clxxvi, 467	1100
Ptilichthys goodei	cccxlvii, 848	2452
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pulcher, Pimelometopon	ccxxxviii, 598	1585
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punctatus, Bodianus fulvus	clxxxii, 481	1146
Ictalurus	xxv, 58	134
Stichæus	cccxlv, 841	2439
Xesurus	cclvii, 630	1694
punctulatus, Cottus	ccxcii, 708	1948
putnami, Liopsetta	ccclxxx, 936	2650
pygmæa, Umbra	xcix, 268	624
quadracus, Apeltes	cxx, 322	752
quadricornis, Oncocottus	ccc, 728	2001
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quadrituberculatus, Pleuronectes	ccclxxix, 934	2648
quadrocellata, Ancylopsetta	ccclxxv, 925	2634
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quiescens, Copelandellus	clxxvi, 468	1100
Rabirubia inermis	cxcix, 519	1274
Rachycentron canadus	cxlviii, 401	948
radiatus, Iridio	ccxxxix, 600	1590
Radulinus asprellus	cclxxxvii, 695	1920
boleoides	cclxxxvii, 694	1919
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Ranzania truncata	cclxviii, 651	1755
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Rastrinus scutiger	cclxxxvi, 691	1909
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Mulloides	cxxxii, 361	857
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Regalecus glesne	ccclxx, 916	2596
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Scomberomorus	cxxxv, 369	875
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Remora brachyptera	cccxxx, 797, 797*a*	2272
reticulatus, Lycodes	cccxlix, 854	2465
retifera, Muræna	lxvi, 173	401
retrosella, Apogon	clxxvii, 471	1108
Rhacochilus toxotes	ccxxxi, 584	1507
Rhamphocottus richardsoni	cccvii, 742, 742*a*, 742*b*, 742*c*	2030
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Rhomboplites aurorubens	cc, 521	1277
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Rhamphocottus	cccvii, 742, 742*a*, 742*b*, 742*c*.	2030
rimator, Bathystoma	ccvi, 534	1308
Rimicola muscarum	cccxxxv, 813	2338
rimosus, Etropus	ccclxxxv, 945	2688
Rissola marginata	cccliii, 868	2489
rivulatus, Cirrhites	ccxxvii, 576	1491
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Rupiscartes atlanticus	CCCXXXIX, 825	2397
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Scorpænichthys marmoratus	CCLXXXIII, 685	1889
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Setarches parmatus	CCLXXIX, 673	1860
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Myoxocephalus	CCXCVIII, 722, 722*a*, 722*b*	1981
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Stenotomus aculeatus	CCXII, 545	1346
chrysops	CCXI, 544	1346
Stephanoberyx monæ	CXXIX. 353	836
sterletus, Averruncus	CCCX, 750, 750*a*	2071
Sternias xenostethus	CCLXXXVIII, CCLXXXIX, 699, 699*a*	1927
Stichæus punctatus	CCCXLV, 841	2439
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Stizostedion canadense	CLXIV, 434	1022
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striatus, Centropristes	CXC, 500	1199
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williamsi	CCCLXXXVIII, 951	2711
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Tautogolabrus adspersus	CCXXXVII, 595	1577
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tenuis, Urophycis	CCCLXV, 901	2555
tergisus, Hiodon	LXVIII, 180	413
testudineus Spheroides	CCLXV, 645, 645*a*	1734
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Tetronarce californica	XII, 34, 34*a*	77
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Thaleichthys pacificus	LXXXV, 226	521
thazard, Auxis	CXXXIII, 365	867
Theragra chalcogramma	CCCLX, 887	2535
thoburni, Alcidea	CCLXXXIII, 684	1887
Thymallus tricolor	LXXXIV, 223	518 2871
montanus	LXXXIV, 224, 224*a*	519 2871
signifer	LXXXIII, 222	517
Thyrina evermanni	CXXV, 340	804
tiburo, Sphyrna	V, 19	44
tigrinus, Myrichthys	LXI, 161	376
tomcod, Microgadus	CCCLX, 890	2540
toxotes, Rhacochilus	CCXXXI, 584	1507
Trachinocephalus myops	LXXXVIII, 235	533
Trachinotus carolinus	CXLVII, 398	944
culveri	CXLVII, 397	942
falcatus	CXLVI, 396	941
glaucus	CXLVI, 395	940
Trachurops crumenophthalmus	CXLI, 385	911
Trachurus trachurus	CXL, 384	910
trachurus, Trachurus	CXL, 384	910
transmontana, Columbia	CXXII, 330	784
transmontanus, Acipenser	XX, 44	104
traski, Hysterocarpus	CCXXVII, 577	1496
triacanthus, Poronotus	CL. 405	967
Trichiurus lepturus	CXXXVII, 375	889
Trichodon trichodon	CCCXXXIII, 806	2295
trichodon, Trichodon	CCCXXXIII, 806	2295
Trichopsetta ventralis	CCCLXXXIII, 940	2669
tricolor, Holacanthus	CCLIII, 625	1684
montanus, Thymallus	LXXXIV, 224, 224*a*	519 2871
Thymallus	LXXXIV, 223	518 2871
tricornis, Lactophrys	CCLXI, 638	1724
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Triglops beani	CCLXXXVIII, 697	1924
pingeli	CCLXXXVII, 696	1923
scepticus	CCLXXXVIII, 698	1925
trigonus, Lactophrys	CCLXIII, 640, 640*a*	1723
triqueter, Lactophrys	CCLXI, 637	1722
tristœchus, Lepisosteus	XXII, 50	111
truncata, Ranzania	CCLXVIII, 651	1755
tschawytscha, Oncorhynchus	LXXVII, 206	479
tsiltcoosensis, Catostomus	XXXIII, 80	2793
turneri, Lycodalepis	CCCL, 858	2469
tuscumbia, Psychromaster	CLXXVI, 467	1100
Tylosurus acus	CXVI, 309	716
raphidoma	CXVI, 308	715
Typhlichthys subterraneus	CXV, 306	704
Typhlogobius californiensis	CCCXXIX, 795	2262
tyrannus, Brevoortia	LXXIII, 195	433
Ulocentra gilberti	CLXIX, 446	1049
meadiæ	CLXIX, 447	2852
simotera	CLXX, 448	1053
ulvæ, Xiphistes	CCCXLIII, 836	2423
Ulvaria subbifurcata	CCCXLV, 842	2440
umatilla, Agosia	LII, 134	313
Umbra pygmæa	XCIX, 268	624
Umbrina sinaloæ	CCXXIV, 571	1468
undecimalis, Centropomus	CLXXIX, 476	1118
undulatus, Micropogon	CCXXIV, 570	1461

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unifasciatus, Hyporhamphus	CXVI, 311	720
unimaculatus, Archosargus	CCXVI, 553	1359
Upeneus maculatus	CXXXII, 362	858
Uraleptus malardi	CCCLXII, 894	2545
Uranidea tenuis	CCXCIV, 714	1966
uranops, Phenacobius	LI, 130	304
Urophycis chesteri	CCCLXVI, 903	2556
chuss	CCCLXV, 902	2555
cirratus	CCCLXIV, 899	2553
earlli	CCCLXV, 900	2554
regius	CCCLXIV, 898	2553
tenuis	CCCLXV, 901	2555
uter, Catulus	III, 12	25
vagrans, Kirtlandia	CXXIV, 336	794
variatus, Characodon	CXI, 295. 295*a*	669
variegatus, Cyprinodon	CXI, CXII, 296, 296*a*	671
velifer, Letharchus	LXI, 160	375
Venefica procera	LVIII, 152	365
venenosa, Mycteroperca	CLXXXVII, 491	1172
ventralis, Novacuilichthys	CCXLI, 605	1615
Ogilbia	CCCLV, 872	2503
Trichopsetta	CCCLXXXIII, 940	2669
venusta, Emmeekia	CCXL, 603	1602
Verilus sordidus	CCII, 525	1284
Verma kendalli	LX, 159, 159*a*	375
verrillii, Lycenchelys	CCCLI. 859	2470
verrucosus, Myoxocephalus	CCXCVII, 720, 720*a*	1979
vespertilio, Ogcocephalus	CCCXCII, 958–958*b*	2737
veternus, Podothecus	CCCIX, 747, 747*a*	2063
villosus, Mallotus	LXXXV, 225	520
vinolentus, Lethotremus	CCCXIV, 759	2101
viola, Antimora	CCCLXII, 893, 893*a*	2544
violaceus, Escolar	CXXXV, 370	878 2843
virens, Pollachius	CCCLIX, 886	2534
virgatum, Etheostoma	CLXXV, 465	1093
virginalis. Salmo clarkii	LXXIX, 209	495 2819
virginicus, Anisotremus	CCIX, 539	1322
viridis, Evoplites	CXCVI, 514	1246
Gymnelis	CCCLII, 864–864*c*	2479
vitreum, Stizostedion	CLXIV, 433, 433*a*	1021
vittata, Channomuræna	LXVI, 174	404
vivanus, Hemianthias	CXCII, 505	1223
volitans, Cephalacanthus	CCCXXIII, 778	2183
Exocœtus	CXVIII, 318	734
vomer, Selene	CXLIV, CXLV, 393, 393*a*	936
Vomer setipinnis	CXLIV, 392	934
vulpes, Albula	LXVIII. 179	411
Alopias	VI, 20	45
vulsus, Stelgis	CCCIX, 748, 748*a*	2067
watauga. Hybopsis	LIII, 137	319
welaka, Notropis	XLV, 113	2799
whipplii, Notropis	XLVIII, 121	278
williamsi, Symphurus	CCCLXXXVIII, 951	2711
willoughbyi, Acrotus	CLI, 408	973
xanthurus, Leiostomus	CCXXIII, 569	1458
Xenichthys agassizii	CCIII, 527	1287
Xenochirus triacanthus	CCCXI, 754, 754*a*	2084
Xenocys jessiæ	CCII, 526	1285
xenodon, Calotomus	CCXLIII, 609, 609*a*	1626
Xenopsis ocellatus	CCXLVI, 618	1660
xenostethus, Sternias	CCLXXXVIII, 699, 699*a*	1927
Xesurus punctatus	CCLVII, 630	1694
Xiphidion rupestre	CCCXLIV, 838	2426
Xiphistes chirus	CCCXLIV, 837	2424
ulvæ	CCCXLIII, 836	2423
Xiphophorus helleri	CXV, 304	701
Xyrauchen cypho	XXXV, 88	184
Xyrichthys psitticus	CCXLII, 607	1618
Xystema cinereum	CCXVIII, 556	1372
Xystes axinophrys	CCCX, 752, 752*a*	2076

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Yarrella blackfordi	XCIII, 249	584
y græcum, Astroscopus	CCCXXXIV, 808	2307
Zalembius rosaceus	CCXXIX, 581	1500
Zalocys stilbe	CXLVIII, 399	2848
zanclus, Dermatolepis	CLXXXVI, 489	2854
Zanclus cornutus	CCLV, 627	1687
Zaprora silenus	CLII, 409	2850
zebrinus, Fundulus	CIII, 276	646
Zesticelus profundorum	CCC, 726	1990
Zoarces anguillaris	CCCXLVIII, 850	2457
zoarchus, Lycodes	CCCXLIX, 853	2464
zonata, Seriola	CXXXIX, 381	902
zonipectus, Pomacanthus	CCLII, 624	1681
zonope, Jordania	CCLXXXII, 683	1884
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EXPLANATION OF PLATES AND FIGURES.

NOTE.—The actual size of the specimen from which each illustration was drawn may, in most instances, be determined by the use of the inch mark beneath the engraving, which, in the photographic reduction of the drawing, is reduced in the same proportion as the drawing itself.

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163. **Pisoodonophis cruentifer** Goode and Bean 377
Drawing by A. H. Baldwin from the type, No. 28938, U.S.N.M., collected by the *Fish Hawk*.

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164. **Calechelys muræna** Jordan and Evermann 378
Drawing by A. H. Baldwin from the type, No. 37996, U.S.N.M., collected by Silas Stearns at the Pensacola Snapper Banks.

165. **Bascanichthys scuticaris** (Goode and Bean) 378
Drawing by H. L. Todd from the type of *Sphagebranchus teres* Goode and Bean, No. 31457, U.S.N.M., collected by Kaiser and Martin on west coast of Florida.

166, 166*a*. **Bascanichthys peninsulæ** (Gilbert) 379
Drawings by A. H. Baldwin from the type, No. 44297, U.S.N.M., collected by the *Albatross* in La Paz Bay, Lower California.

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167. **Quassiremus evionthas** (Jordan and Bollman) 380
Drawing by A. H. Baldwin.

168. **Ophichthus guttifer** (Bean and Dresel) 383
Drawing by H. L. Todd from the type, No. 32647, U.S.N.M., collected by Silas Stearns on the Pensacola Snapper Banks.

169. **Ophichthus ocellatus** (Le Sueur) 383
Drawing by H. L. Todd from No. 22289, U.S.N.M., collected by Silas Stearns at Pensacola, Florida.

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170. **Mystriophis intertinctus** (Richardson) 386
Drawing by H. L. Todd from No. 22865, U.S.N.M., collected by Kaiser and Martin on west coast of Florida.

171. **Lycodontis moringa** (Cuvier) 395
Drawing by H. L. Todd from No. 6994, U.S.N.M., collected at Garden Key, Florida.

172. **Muræna insularum** Jordan and Davis 400
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173. **Muræna retifera** Goode and Bean 401
Drawing by H. L. Todd from the type, No. 31393, U.S.N.M., collected by C. C. Leslie, at Charleston, South Carolina.

174. **Channomuræna vittata** (Richardson) 404
Drawing by A. H. Baldwin.

175. **Saccopharynx ampullaceus** (Harwood) 406
Drawing from Günther, Challenger Report, Vol. XXII, Pl. LXVI.

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176. **Gastrostomus bairdii** Gill and Ryder 406
Drawing by H. L. Todd from No. 33386, U.S.N.M., collected by the *Albatross* at Station 2074, in N. lat. 41° 43′, W. long. 65° 21′ 50″, at a depth of 1,309 fathoms.

177. **Tarpon atlanticus** (Cuvier and Valenciennes) 409
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178. **Elops saurus** Linnæus 410
Drawing by H. L. Todd.

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179. **Albula vulpes** (Linnæus) 411
Drawing by H. L. Todd.

180. **Hiodon tergisus** Le Sueur 413
Drawing by H. L. Todd from No. 8710, U.S.N.M., collected by George Clark, at Ecorse, Michigan.

181. **Hiodon selenops** Jordan and Bean 414
Drawing by H. L. Todd from the type, No. 19844, U.S.N.M., collected by Daniel J. Duffy, at Chattanooga, Tennessee.

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182. **Chanos chanos** (Forskål) 414
Drawing by A. H. Baldwin from No. 28240, U.S.N.M., collected by Dr. Gilbert at Mazatlan, Mexico.

183. **Dorosoma cepedianum** (Le Sueur) 416
Drawing by H. L. Todd.

184. **Signalosa atchafalayæ** Evermann and Kendall 2809
Drawing by A. H. Baldwin from the type, No. 48790, U.S.N.M., collected by Fred M. Chamberlain in the Atchafalaya River at Melville, Louisiana.

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185. **Clupea harengus** Linnæus 421
Drawing by H. L. Todd.

186. **Clupea pallasii** Cuvier and Valenciennes 422
Drawing by H. L. Todd from No. 27718, U.S.N.M., collected by L. Bailey at Unalaska.

187. **Pomolobus chrysochloris** Rafinesque 425
Drawing by H. L. Todd from No. 30159, U.S.N.M., collected by Silas Stearns at Pensacola, Florida.

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188. **Pomolobus mediocris** (Mitchill) 425
Drawing by H. L. Todd from No. 25132, U.S.N.M., collected at Washington market by Dr. Bean.

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189. **Pomolobus pseudoharengus** (Wilson) 426
Drawing by H. L. Todd from No. 25197, U.S.N.M., collected at Washington market.

190. **Pomolobus æstivalis** (Mitchill) 426
Drawing by H. L. Todd from No. 32639, U.S.N.M., collected at Washington market.

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191. **Alosa sapidissima** (Wilson) 427
Drawing by H. L. Todd from No. 25099, U.S.N.M., collected by U. S. F. C. at Norfolk, Virginia.

192, 192*a*. **Alosa alabamæ** Jordan and Evermann 2810
Drawings by A. H. Baldwin from the types, Nos. 47690, male, and 47689, female, U.S.N.M., collected by J. N. Fitts in Black Warrior River, at Tuscaloosa, Alabama.

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193. **Sardinella humeralis** (Cuvier & Valenciennes) 431
Drawing by H. L. Todd from the type of *Harengula pensacolæ* Goode and Bean, No. 22831, U.S.N.M., collected by Silas Stearns at Pensacola, Florida.

194. **Sardinella stolifera** (Jordan and Gilbert) 431
Drawing by Anna L. Brown from No. 2693, L. S. Jr. Univ. Mus., collected by the Hopkins Expedition at Mazatlan, Mexico.

195. **Brevoortia tyrannus** (Latrobe) 433
Drawing by H. L. Todd from No. 20666, U.S.N.M., collected at Woods Hole, Massachusetts.

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196. **Stolephorus perthecatus** Goode and Bean 442
Drawing by H. L. Todd from No. 30483, U.S.N.M., collected by Silas Stearns in south Florida.

197. **Alepocephalus agassizii** Goode and Bean 453
Drawing by H. L. Todd from No. CCCXXXVIII, M. C. Z., collected by A. Agassiz in N. lat. 38° 18′ 40″, W. long. 73° 18′ 10″, at a depth of 922 fathoms.

198. **Talismania antillarum** Goode and Bean 455
Drawing by M. M. Smith from the type, No. 43739, U.S.N.M., collected by the *Albatross* at Station 2394, in N. lat. 28° 38′ 30″, W. long. 87° 02′, at a depth of 420 fathoms.

PLATE LXXV.

199. **Aleposomus copei** Gill 459
Drawing by H. L. Todd from the type, No. 33551, U.S.N.M., collected by the *Albatross* at Station 2099, in N. lat. 37° 12′ 20″, W. long. 69° 39′, at a depth of 2,949 fathoms.

Text page.

200. **Coregonus williamsoni** Girard 463
Drawing by A. H. Baldwin from a breeding male collected by B. A. Bean in Little Spokane River, near Clarks Spring, Washington.

200*a*. **Coregonus williamsoni** Girard 463
Drawing by A. H. Baldwin from a young individual collected by Dr. Evermann in Montana.

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201. **Coregonus coulterii** Eigenmann and Eigenmann 462
Drawing by A. H. Baldwin from the type, No. 44875, U.S.N.M., collected by Dr. Eigenmann in the Kicking Horse River at Field, British Columbia.

202. **Coregonus clupeiformis** (Mitchill) 465
Drawing by H. L. Todd from No. 10300, U.S.N.M., collected by George Clark at Ecorse, Michigan.

203. **Argyrosomus nigripinnis** Gill 472
Drawing by A. H. Baldwin from a nearly ripe male collected in Lake Michigan, off Sheboygan, Wisconsin, in 90 fathoms.

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204. **Stenodus mackenzii** (Richardson) 474
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205. **Oncorhynchus gorbuscha** (Walbaum) 478
Drawing by H. L. Todd from No. 27743, U.S.N.M., collected by Dr. Bean in Cooks Inlet, Alaska.

206. **Oncorhynchus tschawytscha** (Walbaum) 479
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207. **Oncorhynchus nerka** (Walbaum) 481
Drawing by A. H. Baldwin from a male specimen of the large form collected by T. M. Williams at Big Payette Lake, Idaho.

207*a*. **Oncorhynchus nerka** (Walbaum) 481
Drawing by A. H. Baldwin from a female specimen of the small form collected by Dr. Evermann at Alturas Lake, Idaho.

207*b*. **Oncorhynchus nerka** (Walbaum) 481
Drawing by A. H. Baldwin from a mutilated male specimen of the small form collected by Dr. Evermann at Alturas Lake, Idaho.

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208. **Salmo clarkii henshawi** (Gill and Jordan) 493; 2819
Drawing by S. F. Denton from No. 17086, U.S.N.M., collected by H. W. Henshaw in Lake Tahoe, California.

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209. **Salmo clarkii virginalis** (Girard) 495; 2819
Drawing by S. F. Denton from a specimen collected by Peter Madsen in Utah Lake, Utah.

210. **Salmo clarkii spilurus** (Cope) 495; 2819
Drawing by S. F. Denton from a specimen collected by Jordan and Evermann at Del Norte, Colorado.

PLATE LXXX.

211. **Salmo clarkii pleuriticus** (Cope) 496; 2819
Drawing by S. F. Denton from specimen collected by Jordan and Evermann at Trappers Lake, Colorado.

212. **Salmo clarkii bouvieri** (Bendire) 496; 2819
Drawing by S. F. Denton from the type, collected by Capt. Charles Bendire at Waha Lake, Idaho.

213. **Salmo clarkii stomias** (Cope) 497; 2819
Drawing by S. F. Denton from a specimen collected by Jordan and Evermann at Twin Lakes, Colorado.

PLATE LXXXI.

214. **Salmo clarkii macdonaldi** Jordan and Evermann 497; 2819
Drawing by S. F. Denton from the type, No. 41730, U.S.N.M., collected by George Fisher in Twin Lakes, Colorado.

215. **Salmo gairdneri** Richardson 497

216. **Salmo irideus** Gibbons 500
Drawing by S. F. Denton from No. 37782, U.S.N.M., a male example, collected by William Montgomery at Verona, Missouri, where the species had been introduced.

PLATE LXXXII.

217. **Cristivomer namaycush** (Walbaum) 504
Drawing by S. F. Denton.

218. **Salvelinus fontinalis** (Mitchill) 506
Drawing by H. L. Todd from No. 28651, U.S.N.M., collected by E. G. Blackford.

219. **Salvelinus malma** (Walbaum) 507
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PLATE LXXXIII.

220. **Salvelinus alpinus aureolus** (Bean) 511
Drawing by H. L. Todd from No. 39899, U.S.N.M., a female, collected by E. B. Hodge at Sunapee Lake, New Hampshire.

221. **Salvelinus oquassa** (Girard) 514
Drawing by H. L. Todd from No. 20688, U.S.N.M., collected by E. G. Blackford at Oquassa Lake, Maine.

222. **Thymallus signifer** (Richardson) 517
Drawing by H. L. Todd from a specimen collected by E. W. Nelson at Nulato, Alaska.

PLATE LXXXIV.

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223. **Thymallus tricolor** Cope 518; 2871
Drawing by H. L. Todd from No. 11115, U.S.N.M., collected by J. W. Milner in Ausable River, Michigan.

224. **Thymallus tricolor montanus** (Milner) 519; 2871
Drawing by S. F. Denton from a specimen collected by Dr. Jordan at Horsethief Springs, Montana.

224*a*. **Thymallus tricolor montanus** (Milner) 519; 2871
Drawing by A. H. Baldwin from a young example collected in the Yellowstone Park by Dr. Evermann.

PLATE LXXXV.

225. **Mallotus villosus** (Müller) 520
Drawing by H. L. Todd from No. 3418, U.S.N.M., collected by Dr. E. Coues in Grosswater Bay.

226. **Thaleichthys pacificus** (Richardson) 521
Drawing by H. L. Todd from No. 28001, U.S.N.M., collected by Marcus Baker in Chilkat River, Alaska.

227. **Osmerus thaleichthys** Ayres 522
Drawing by H. L. Todd from No. 28087, U.S.N.M., collected by Dr. Bean at San Francisco, California.

PLATE LXXXVI.

228. **Osmerus mordax** (Mitchill) 523
Drawing by H. L. Todd from No. 21435, U.S.N.M., collected by V. N. Edwards at Woods Hole, Massachusetts.

229. **Osmerus dentex** Steindachner 524
Drawing by H. L. Todd from No. 27914, U.S.N.M., collected at Port Clarence, Alaska, by Dr. Bean.

230. **Hypomesus pretiosus** (Girard) 525
Drawing by H. L. Todd from No. 27995, U.S.N.M., collected in Yakutat Bay, Alaska, by Dr. Bean.

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231. **Hypomesus olidus** (Pallas) 525
Drawing by H. L. Todd from No. 23973, U.S.N.M., collected by L. M. Turner at St. Michaels, Alaska.

232. **Argentina silus** Ascanius 526
Drawing by H. L. Todd from No. 37801, U.S.N.M., collected by E. H. Bunker at Biddeford Pool, Maine.

233. **Leuroglossus stilbius** Gilbert 527
Drawing by A. H. Baldwin from the type, No. 44283, U.S.N.M., collected by the *Albatross* at Station 2997 in 221 fathoms.

PLATE LXXXVIII.

234. **Bathylagus benedicti** Goode and Bean 529
Drawing by A. H. Baldwin from a specimen collected by the *Albatross* at Station 2711, in N. lat. 38° 59′, W. long. 70° 07′, in 1,344 fathoms.

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235. **Trachinocephalus myops** (Forster) 533
Drawing by H. L. Todd.

236. **Synodus fœtens** (Linnæus) 538
Drawing by H. L. Todd from No. 25998, U.S.N.M., collected by C. C. Leslie at Charleston, South Carolina.

PLATE LXXXIX.

237. **Benthosaurus grallator** Goode and Bean 543
Drawing by H. L. Todd from a specimen collected by the *Blake* at Station CLXXIV, in N. lat. 24° 23′, W. long. 84° 23′, in 1,850 fathoms.

238. **Bathypterois quadrifilis** Günther 545
Drawing by A. H. Baldwin from a specimen collected by the *Blake* at Station XCVIII, off St. Vincent.

239. **Ipnops murrayi** Günther 547
Drawing by H. L. Todd from a specimen collected by the *Blake* at Station CCXXXIII, in N. lat. 24° 36′, W. long. 84° 5′, in 955 fathoms.

PLATE XC.

240. **Rondeletia bicolor** Goode and Bean 548
Drawing by H. L. Todd from the type, No. 38202, U.S.N.M., collected by the *Albatross* at Station 2206, in N. lat. 36° 47′, W. long. 73° 25′, in 1,641 fathoms.

241. **Cetomimus gillii** Goode and Bean 549
Drawing by M. M. Smith from the type, No. 35529, U.S.N.M., collected by the *Albatross* at Station 2206, in N. lat. 39° 35′, W. long. 71° 24′ 30″, in 1,043 fathoms.

242. **Ceratoscopelus madeirensis** (Lowe) 557
Drawing by J. C. Van Hook from No. 43776, U.S.N.M., collected by the *Albatross* at Station 2528, in N. lat. 41° 47′ W. long. 65° 37′ 30″, in 677 fathoms.

PLATE XCI.

243. **Lampanyctus crocodilus** (Risso) 558
Drawing by A. H. Baldwin from a specimen collected at Nice, and obtained by the U.S.N.M. through the Royal Zoological Museum at Florence, Italy.

244. **Lampadena speculigera** Goode and Bean 561
Drawing by J. C. Van Hook from the type, No. 43797, U.S.N.M., collected by the *Fish Hawk* at Station 797, off Newport, Rhode Island, in 16.5 fathoms.

245. **Nannobrachium macdonaldi** Goode and Bean 563
Drawing by S. F. Denton from No. 35445, U.S.N.M., collected by the *Albatross* at Station 2182, in N. lat. 39° 25′ 30″, W. long. 71° 44′, in 861 fathoms.

PLATE XCII.

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246. **Æthoprora lucida** Goode and Bean 565
Drawing by A. H. Baldwin from No. 44084, U.S.N.M., collected by the *Albatross* at Station 2127, in N. lat. 19° 45′, W. long. 75° 04′, in 1639 fathoms.

247. **Myctophum opalinum** Goode and Bean 571
Drawing by J. C. Van Hook from No. 43798, U.S.N.M., collected by the *Albatross* at Station 2585, in N. lat. 39° 08′ 30″, W. long. 72° 17′, in 542 fathoms.

248. **Tarletonbeania tenua** Eigenmann and Eigenmann........... 575
Drawing by A. H. Baldwin from No. 41882, U.S.N.M., collected by C. H. Eigenmann off Point Loma, near San Diego, California.

PLATE XCIII.

249. **Yarrella blackfordii** Goode and Bean........................ 584
Drawing by A. H. Baldwin from the type, No. 44242, U.S.N.M., collected by the *Albatross* at Station 2376, in N. lat. 29° 03′ 15″, W. long. 88° 16′, in 324 fathoms.

250. **Chauliodus sloanei** Bloch and Schneider...................... 585
Drawing by H. L. Todd from No. 23420, U.S.N.M., collected by Capt. Charles Anderson and crew, of the Gloucester fishing fleet, in N. lat. 42° 08′, W. long. 65° 35′, in 185 fathoms.

251. **Astronesthes gemmifer** Goode and Bean...................... 586
Drawing by A. H. Baldwin from the type, No. 24645, U.S.N.M., collected by the schooner *Polar Wave* from the stomach of a halibut, in N. lat. 44° 25′, W. long. 53° 12′, in 300 fathoms.

PLATE XCIV.

252. **Astronesthes richardsoni** Poey.............................. 587
Drawing by M. M. Smith from No. 35540, U.S.N.M., collected by the *Albatross* at Station 2202, in N. lat. 39° 38′, W. long. 71° 39′ 45″, in 515 fathoms.

253. **Stomias ferox** Reinhardt.................................. 588
Drawing by H. L. Todd from No. 23360, U.S.N.M., collected by Capt. David Cammel and crew, of the Gloucester fishing fleet, at East Banquereux.

254. **Grammatostomias dentatus** Goode and Bean 590
Drawing by H. L. Todd from the type, No. 37370, U.S.N.M., collected by the *Albatross*, at Station 2565, in N. lat. 38° 19′ 20″, W. long. 69° 02′ 30″, in 2069 fathoms.

PLATE XCV.

255. **Photonectes graciles** Goode and Bean 591
Drawing by M. M. Smith from the type, collected by the *Blake* at Station XL, off Martinique, in 472 fathoms.

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256. **Malacosteus niger** Ayres 593
Drawing by H. L. Todd, from No. 32169, U.S.N.M., collected by Capt. Charles Anderson and crew, of the schooner *Alice G. Wonson*, on the northeastern edge of Georges Bank, in 125 fathoms.

257. **Alepisaurus ferox** Lowe 595
Drawing by H. L. Todd from No. 20593, U.S.N.M., obtained in the New York market by E. G. Blackford.

PLATE XCVI.

258. **Alepisaurus æsculapius** (Bean) 595
Drawing by H. L. Todd from the type, No. 27705, U.S.N.M., collected by Robert King at Unalaska, Alaska.

259. **Arctozenus coruscans** (Jordan & Gilbert) 601
Drawing by A. H. Baldwin from the type, No. 27171, U.S.N.M., collected by Mr. Brown, at Port Townsend, Washington.

260. **Paralepis coregonoides** Risso 602
Drawing by H. L. Todd from a specimen in the Academy of Natural Sciences of Montreal.

PLATE XCVII.

261, 261*a*. **Argyropelecus olfersi** (Cuvier) 604
Drawings by H. L. Todd from No. 33393, U. S. N. M., collected by the *Albatross* in N. lat. 41° 40′ 30″, W. long. 65° 35′, in 855 fathoms.

PLATE XCVIII.

262. **Aldrovandia macrochir** (Günther) 609
Drawing by H. L. Todd from a specimen collected by the *Blake* at Station LIII, off Havana, in 242 fathoms.

263. **Aldrovandia gracilis** Goode and Bean 610
Drawing by S. F. Denton, from a specimen collected by the *Blake* at Station LXX, off Guadaloupe, in 769 fathoms.

264. **Notacanthus analis** Gill 615
Drawing by H. L. Todd from the type, No. 37856, U.S.N.M., collected by the *Albatross* at Station 2677, in N. lat. 32° 39′, W. long. 76° 50′ 30″, in 478 fathoms.

265. **Notacanthus phasganorus** Goode 616
Drawing by H. L. Todd from the type, No. 25972, U.S.N.M., collected by Capt. Briggs Gilpatrick, of the schooner *Gatherer*, from the stomach of a ground shark, on the Grand Bank.

PLATE XCIX.

266. **Lipogenys gillii** Goode and Bean 619
Drawing by H. L. Todd from the type, No. 39212, U.S.N.M.. collected by the *Albatross* at Station 2742, in N. lat. 37° 46′ 30″, W. long. 73° 56′ 30″, in 865 fathoms.

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267. **Dallia pectoralis** Bean 621
Drawing by H. L. Todd from the type, No. 23498, U.S.N.M., collected by L. M. Turner, at St. Michaels, Alaska.

268. **Umbra pygmæa** (De Kay) 624
Drawing by H. L. Todd from No. 34886, U.S.N.M., collected in New Jersey.

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269, 269*a*. **Lucius lucius** (Linnæus) 628
Drawings by H. L. Todd from No. 9389, U.S.N.M., collected at Ecorse, Michigan.

270. **Lucius masquinongy** (Mitchill) 629
Drawing by H. L. Todd from No. 10607, U.S.N.M., collected by Geo. Clark at Ecorse, Michigan.

PLATE CI.

271, 271*a*. **Fundulus majalis** (Walbaum) 639
Drawings by H. L. Todd from No. 13788, U.S.N.M. (female and male), collected by the U. S. Fish Commission at Woods Hole, Massachusetts.

271*b*. **Fundulus majalis** (Walbaum) 639
Drawing by A. H. Baldwin from a young example collected by H. M. Smith at St. George Island, Maryland.

PLATE CII.

272. **Fundulus pallidus** Evermann 638
Drawing by A. H. Baldwin from the type, No. 45564, U.S.N.M., collected by Evermann, Scovell, and Gurley in Galveston Bay, near Swan Lake, Galveston, Texas.

273. **Fundulus heteroclitus** (Linnæus) 640
Drawing by A. H. Baldwin from a male example collected by H. M. Smith at St. George Island, Maryland.

274. **Fundulus ocellaris** Jordan and Gilbert 642
Drawing by A. H. Baldwin from a specimen collected in the Withlacoochee River, Florida, by A. J. Woolman.

PLATE CIII.

275. **Fundulus diaphanus** (Le Sueur) 645
Drawing by A. H. Baldwin from a male example collected by H. M. Smith at St. George Island, Maryland.

275*a*. **Fundulus diaphanus** (Le Sueur) 645
Drawing by A. H. Baldwin from a female example collected by H. M. Smith at St. George Island, Maryland.

276. **Fundulus zebrinus** Jordan and Gilbert 646
Drawing by H. L. Todd from No. 36610, U.S.N.M., collected at Ellis, Kansas, by F. W. Cragin.

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278.	**Fundulus catenatus** (Storer) Drawing by A. H. Baldwin from a male example collected by Dr. Gurley in Ball Creek, near Tazewell, Tennessee.	648
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279.	**Fundulus stellifer** (Jordan) Drawing by H. L. Todd from No. 17888, U.S.N.M., collected by Dr. Jordan in Etowa River, Rome, Georgia.	648
280.	**Fundulus rathbuni** Jordan and Meek Drawing by S. F. Denton from the type, No. 39860, U.S.N.M., collected in Allemance Creek, Greensboro, North Carolina, by Jordan, Jenkins, and Meek.	649
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282.	**Fundulus funduloides** (Evermann) Drawing by A. H. Baldwin from the type, No. 45563, U.S.N.M., collected by Evermann, Scovell, and Gurley in Dickinson Bayou, near Galveston, Texas.	650
283.	**Fundulus macdonaldi** (Meek) Drawing by S. F. Denton from the type collected by Meek, Drew, and Rettger in Jones Creek, Dixon, Missouri.	651
284.	**Fundulus jenkinsi** Evermann Drawing by A. H. Baldwin from the type, No. 45562, U.S.N.M., collected by Evermann, Scovell, and Gurley in Dickinson Bayou, near Galveston, Texas.	651

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285.	**Fundulus pulvereus** (Evermann) Drawing by A. H. Baldwin from the type, No. 45561, U.S.N.M., collected in Dickinson Bayou, near Galveston, Texas, by Evermann, Scovell, and Gurley.	652
286.	**Fundulus luciæ** (Baird) Drawing by A. H. Baldwin from a specimen collected by H. M. Smith at St. George Island, Maryland.	654
287.	**Fundulus chrysotus** Holbrook Drawing by A. H. Baldwin from a specimen collected by A. J. Woolman in Florida.	655

PLATE CVIII.

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288. **Fundulus nottii** (Agassiz) 656
Drawing by H. L. Todd from No. 31439, U.S.N.M., collected in Elbow Creek, Florida, by J. A. Henshall.

289. **Fundulus notatus** (Rafinesque) 659
Drawing by H. L. Todd from No. 36324, U.S.N.M., collected in White River at Eureka Springs, Arkansas, by Jordan and Gilbert.

290. **Adinia dugesii** (Bean) 661
Drawing by H. L. Todd from the type, No. 37831, U.S.N.M., collected by Prof. A. Dugès, in Guanajuato, Mexico.

PLATE CIX.

291. **Fundulus goodei** (Jordan) 664; 2831
Drawing by A. H. Baldwin, from a specimen collected by A. J. Woolman in Florida.

292. **Lucania parva** (Baird and Girard) 665
Drawing by W. S. Haines from a specimen collected by Dr. Bean in New Jersey.

293. **Characodon bilineatus** Bean 668
Drawing by W. S. Haines from the type, No. 37832, U.S.N.M., collected by Professor Dugès in Guanajuato, Mexico.

PLATE CX.

294, *294a*, *294b*, *294c*, *294d*. **Empetrichthys merriami** Gilbert 667
Drawings from the type, No. 46101, U.S.N.M., collected by Merriam and Bailey in Ash Meadows, Amargosa Desert, on the boundary between California and Nevada.

PLATE CXI.

295, *295a*. **Characodon variatus** Bean 669
Drawings by H. L. Todd from No. 37810, U.S.N.M., the type of *C. ferrugineus* Bean, collected by Professor Dugès in Guanajuato, Mexico.

296. **Cyprinodon variegatus** Lacépède 671
Drawing by A. H. Baldwin from a male example collected by H. M. Smith at St. George Island, Maryland.

PLATE CXII.

296a. **Cyprinodon variegatus** Lacépède 671
Drawing by A. H. Baldwin from a young example collected by H. M. Smith at St. George Island, Maryland.

297. **Cyprinodon carpio** Günther 675
Drawing by H. L. Todd from No. 32151, U.S.N.M., collected by Dr. J. W. Velie at Boca Ciega Bay, Florida.

298. **Jordanella floridæ** Goode and Bean 677
Drawing by A. H. Baldwin from a specimen collected by A. J. Woolman in Florida.

PLATE CXIII.

Text page.

299. **Gambusia affinis** (Baird and Girard) 680
Drawing by A. H. Baldwin from No. 37839, U.S.N.M., a male, collected by Professor Dugès in Mexico.

299*a*. **Gambusia affinis** (Baird and Girard) 680
Drawing by A. H. Baldwin from a female example collected by H. M. Smith at St. George Island, Maryland.

300. **Anableps dovii** Gill 685
Drawing by A. H. Baldwin from No. 48214, U. S.N.M., collected by E. W. Nelson in Tehuantepec, Mexico.

PLATE CXIV.

301. **Goodea atripinnis** Jordan 685
Drawing from the type, No. 23137, U.S.N.M., collected by Professor Dugès at Leon in Guanajuato, Mexico.

302. **Heterandria formosa** Agassiz 687
Drawing by A. H. Baldwin.

303. **Pœcilia presidionis** Jordan and Culver 697
Drawing by Anna L. Brown from the type, a female, No. 2687, L. S. Jr. Univ. Mus., collected by the Hopkins Expedition at Mazatlan, Mexico, in the Rio Presidio.

PLATE CXV.

304. **Xiphophorus helleri** Heckel 701
Drawing by A. H. Baldwin from No. 44948, U.S.N.M., collected by A. L. Herrera at Vera Cruz, Mexico.

305. **Chologaster cornutus** Agassiz 703
Drawing by S. F. Denton from the type of *C. avitus* Jordan and Jenkins, No. 39864, U.S.N.M., collected by Jenkins and Meek in the outlet of the Dismal Swamp, Virginia.

306. **Typhlichthys subterraneus** Girard 704
Drawing by H. L. Todd from No. 36806, U.S.N.M., collected in Mammoth Cave, Kentucky.

307. **Amblyopsis spelæus** DeKay 706
Drawing by H. L. Todd from No. 5863, U.S.N.M., collected in Mammoth Cave, Kentucky.

PLATE CXVI.

308. **Tylosurus raphidoma** (Ranzani) 715
Drawing by H. L. Todd.

309. **Tylosurus acus** (Lacépède) 716
Drawing by H. L. Todd from No. 21422, U.S.N.M., received from E. G. Blackford.

310. **Chriodorus atherinoides** Goode and Bean 719
Drawing by H. L. Todd from the type, No. 26593, U.S.N.M., collected by Silas Stearns at Key West, Florida.

311. **Hyporhamphus unifasciatus** (Ranzani) 720
Drawing by H. L. Todd from No. 16944, U.S.N.M., collected by Otto Lugger in Chesapeake Bay.

PLATE CXVII.

Text page.

312. **Hyporhamphus roberti** (Cuvier and Valenciennes) 721
Drawing by W. S. Haines from a specimen collected at Longport, New Jersey, by Dr. Bean.

313. **Hemirhamphus brasiliensis** (Linnæus) 722
Drawing by H. L. Todd from No. 26400, U.S.N.M., collected at Hungers Wharf, Virginia, by J. T. Wilkins.

314. **Scombresox saurus** (Walbaum) 725
Drawing by H. L. Todd from No. 19853, U.S.N.M., collected by V. N. Edwards at Woods Hole.

315. **Fodiator acutus** (Cuvier and Valenciennes) 728
Drawing by A. H. Baldwin from No. 43427, U.S.N.M., collected by the *Albatross* at Panama.

PLATE CXVIII.

316. **Exonautes exsiliens** (Müller) 732; 2830
Drawing by H. L. Todd from No. 25187, U.S.N.M., collected by E. G. Blackford.

317. **Exonautes rondelettii** (Cuvier and Valenciennes) 733; 2830
Drawing by H. L. Todd from No. 21871, U.S.N.M., collected by Capt. N. McPhee in N. lat. 41° 40′, W. long. 62° 28′.

318. **Exocœtus volitans** Linnæus 734
Drawing by H. L. Todd from No. 20636, U.S.N.M., collected by V. N. Edwards at Woods Hole.

PLATE CXIX.

319. **Cypsilurus californicus** (Cooper) 740; 2830
Drawing by H. L. Todd from No. 26907, U.S.N.M., collected by Dr. Jordan at Santa Barbara, California.

320. **Gasterosteus aculeatus** Linnæus 747
Drawing by H. L. Todd from No. 20875, U.S.N.M., collected at Woods Hole, Massachusetts, by V. N. Edwards.

321. **Gasterosteus cataphractus** (Pallas) 749
Drawing by H. L. Todd from a specimen collected by Dr. Bean at St. Paul Island, Alaska.

PLATE CXX.

322. **Apeltes quadracus** (Mitchill) 752
Drawing by A. H. Baldwin from No. 13409, U.S.N.M., collected by V. N. Edwards at Woods Hole, Massachusetts.

323. **Aulorhynchus flavidus** Gill 754
Drawing by A. H. Baldwin from No. 21585, U.S.N.M., collected by J. G. Swan in Puget Sound.

324. **Aulostomus maculatus** Valenciennes 754
Drawing by H. L. Todd from No. 34838, U.S.N.M., collected by U. S. Fish Commission, Potomac River, Washington.

Text page.

325. **Siphostoma starksii** Jordan & Culver........................ 771
Drawing by Anna L. Brown from the type, No. 2686, L. S. Jr. Univ. Mus., collected by the Hopkins Expedition in the Rio Presidio, Mazatlan, Mexico.

326. **Corythroichthys cayorum** Evermann and Kendall........... 2838
Drawing by A. H. Baldwin from the type, No. 48784, U S.N.M., a male, collected by Evermann and Kendall at Key West, Florida.

PLATE CXXI.

327. **Hippocampus hudsonius** De Kay 777
Drawing by H. L. Todd.

328. **Hippocampus zosteræ** Jordan and Gilbert................. 778
Drawing by W. S. Atkinson from a specimen collected by Dr. Jordan at Pensacola, Florida.

329. **Percopsis guttatus** Agassiz............................... 784
Drawing by A. H. Baldwin from a specimen collected by Dr. Evermann in East Okoboji Lake, Iowa.

PLATE CXXII.

330. **Columbia transmontana** Eigenmann and Eigenmann 784
Drawing by A. H. Baldwin from the type, collected at the mouth of the Umatilla River, Oregon, by Dr. Eigenmann.

331. **Aphredoderus sayanus** (Gilliams) 786
Drawing from No. 34401, U.S.N.M., collected by William McAdams in the Illinois River.

332. **Atherina stipes** Müller and Troschel...................... 790
Drawing by A. H. Baldwin from No. 38456, U.S.N.M., collected by the *Albatross* in the Bahamas.

PLATE CXXIII.

333. **Atherina aræa** Jordan and Gilbert......................... 790
Drawing by W. S. Haines from the type, No. 34967, U.S.N.M., collected by Dr. Jordan at Key West, Florida.

334. **Chirostoma humbolditanum** (Cuvier and Valenciennes)..... 793
Drawing by A. H. Baldwin from No. 44156, U.S.N.M., collected by Scovell and Woolman in Mexico.

335. **Eslopsarum jordani** (Woolman) 793; 2840
Drawing by A. H. Baldwin from the type, collected by A. J. Woolman in the canals at Salamanca, Mexico.

PLATE CXXIV.

336. **Kirklandia vagrans** (Goode and Bean) 794
Drawing by H. L. Todd from No. 22864, U.S.N.M., collected by Silas Stearns at Pensacola, Florida.

Text page.

337. **Menidia peninsulæ** (Goode and Bean) 797
Drawing by H. L. Todd from No. 21481, U.S.N.M., collected at Pensacola, Florida., by Silas Stearns.

338. **Menidia gracilis beryllina** (Cope) 797
Drawing by A. H. Baldwin from a specimen collected by H. M. Smith in the Potomac River.

PLATE CXXV.

339. **Eurystole eriarcha** (Jordan and Gilbert) 803
Drawing by Anna L. Brown from No. 2689, L. S. Jr. Univ. Mus., collected by the Hopkins expedition at Mazatlan, Mexico.

340. **Thyrina evermanni** Jordan and Culver 804
Drawing by Anna L. Brown from the type, No. 2688, L. S. Jr. Univ. Mus., collected by the Hopkins Expedition at Mazatlan, Mexico.

341. **Atherinopsis californiensis** Girard 806
Drawing from No. 26764, U.S.N.M., collected by Dr. Jordan at San Diego, California.

PLATE CXXVI.

342. **Atherinops affinis** (Ayres) 807
Drawing by Anna L. Brown.

343. **Mugil cephalus** Linnæus 811
Drawing by H. L. Todd from No. 24456, U.S.N.M., collected at Woods Hole, Massachusetts, by V. N. Edwards.

344. **Mugil curema** Cuvier and Valenciennes 813
Drawing by H. L. Todd.

PLATE CXXVII.

345. **Mugil hospes** Jordan and Culver 814
Drawing by Anna L. Brown from the type, No. 2890, L. S. Jr. Univ. Mus., collected by the Hopkins Expedition at Mazatlan, Mexico.

346. **Chænomugil proboscideus** (Günther) 816
Drawing by A. H. Baldwin from No. 46563, U.S.N.M., collected by the *Albatross* at Clarion Island.

347. **Agonostomus monticola** (Bancroft) 819
Drawing by A. H. Baldwin from No. 45482, U.S.N.M., collected by E. W. Nelson in Mexico.

PLATE CXXVIII.

348. **Joturus pichardi** Poey 821
Drawing by A. H. Baldwin from No. 31010, U.S.N.M., collected by Captain Dow at Panama.

Text page.

349. **Sphyræna barracuda** (Walbaum)........................ 823; 2841
Drawing by H. L. Todd from No. 14978, U.S.N.M., received from E. G. Blackford, collected in Florida.

350. **Polydactylus octonemus** (Girard)........................ 830
Drawing by H. L. Todd from No. 22821, U.S.N.M., collected by Silas Stearns at Pensacola, Florida.

PLATE CXXIX.

351. **Ammodytes americanus** De Kay........................ 833
Drawing by H. L. Todd from No. 16500, U.S.N.M., collected by the U. S. Fish Commission at Nantucket.

352. **Bathyclupea argentea** Goode and Bean........................ 835
Drawing by A. H. Baldwin from the type collected by the *Blake*, off Neris.

353. **Stephanoberyx monæ** Gill........................ 836
Drawing by H. L. Todd from the type, No. 33445, U.S.N.M., collected by the *Albatross* at Station 2077, in the Gulf Stream.

PLATE CXXX.

354. **Hoplostethus mediterraneus** Cuvier and Valenciennes...... 837
Drawing by A. H. Baldwin from No. 43624, U.S.N.M., collected by the *Albatross* at Station 2059.

355. **Plectromus suborbitalis** Gill........................ 841
Drawing by H. L. Todd from the type, No. 33271, U.S.N.M., collected by the *Albatross* at Station 2036, in N. lat. 38° 52′ 40″, W. long. 69° 24′ 40″, in 1,735 fathoms.

356. **Plectromus crassiceps** Günther........................ 843
Drawing by S. F. Denton from No. 33378, U.S.N.M., collected by the *Albatross* in N. lat. 41° 40′ 30″, W. long. 65° 35′, in 855 fathoms.

PLATE CXXXI.

357. **Beryx splendens** Lowe........................ 844
Drawing by M. M. Smith from a specimen collected by the *Albatross* at Station 2415, in N. lat. 30° 44′, W. long. 79° 26′, in 440 fathoms.

358. **Holocentrus ascensionis** (Osbeck)........................ 848
Drawing by H. L. Todd.

359. **Flammeo marianus** (Cuvier and Valenciennes)........... 852; 2871
Drawing by W. S. Atkinson from specimen No. 4972, L. S. Jr. Univ. Mus., collected by Rev. J. S. Roberts at Kingston, Jamaica.

PLATE CXXXII.

360. **Mullus auratus** Jordan and Gilbert........................ 856
Drawing by A. H. Baldwin.

361. **Mulloides rathbuni** (Evermann and Jenkins)................ 857
Drawing by A. H. Baldwin from the type, No. 43241, U.S.N.M., collected by Evermann and Jenkins at Guaymas, Mexico.

Text page
362. **Upeneus maculatus** (Bloch) 858
Drawing by H. L. Todd from No. 21910, U.S.N.M., collected by V. N. Edwards at Woods Hole, Massachusetts.

PLATE CXXXIII.

363. **Scomber scombrus** Linnæus 865
Drawing by H. L. Todd from No. 25256, U.S.N.M., obtained in the Washington market.
364. **Scomber colias** Gmelin 866
Drawing by H. L. Todd from No. 23480, U.S.N.M., collected by the U. S. Fish Commission at Provincetown, Massachusetts.
365. **Auxis thazard** (Lacépède) 867
Drawing by H. L. Todd from No. 35136, U.S.N.M., collected by the U. S. Fish Commission at Woods Hole, Massachusetts.

PLATE CXXXIV.

366. **Gymnosarda alleterata** (Rafinesque) 869
Drawing by H. L. Todd from No. 10436, U.S.N.M., collected by S. F. Baird at Woods Hole, Massachusetts.
367. **Germo alalunga** (Gmelin) 871
Drawing by H. L. Todd from No. 21844, U.S.N.M., collected by Capt. William Thompson of the schooner *Magic*, in 300 fathoms.
368. **Scomberomorus maculatus** (Mitchill) 874
Drawing by H. L. Todd from No. 15582, U.S.N.M., obtained by E. G. Blackford in the New York market.

PLATE CXXXV.

369. **Scomberomorus regalis** (Bloch) 875
Drawing by H. L. Todd from No. 12527, U.S.N.M., collected by E. G. Blackford at Key West.
370. **Escolar violaceus** (Bean) 878; 2843
Drawing by S. F. Denton from the type, No. 39287, U.S.N.M., collected by Capt. Thomas Thompson on Le Have Bank in 125 fathoms.
371. **Epinnula magistralis** Poey 880
Drawing by H. L. Todd from No. 37238, U.S.N.M., collected by the *Albatross* in the Caribbean Sea.

PLATE CXXXVI.

372. **Evoxymetopon tæniatus** Poey 886
Drawing by H. L. Todd from No. 5735, U.S.N.M., collected by Professor Poey in Cuba.
373. **Lepidopus caudatus** (Euphrasen) 886
Drawing by A. H. Baldwin from No. 10115, U.S.N.M., collected by John Xantus at Cape San Lucas, Lower California.

Text page.

374. **Benthodesmus atlanticus** Goode and Bean 887
Drawing by H. L. Todd from the type, No. 29116, U.S.N.M., taken from the stomach of a halibut by Capt. R. Morrison, of the schooner *Laura Nelson*, on the west edge of the Grand Bank of Newfoundland, in 80 fathoms.

PLATE CXXXVII.

375. **Trichiurus lepturus** Linnæus 889
Drawing by H. L. Todd from No. 18028, U.S.N.M., collected by Dr. Janeway at St. Augustine, Florida.

376. **Istiophorus nigricans** (Lacépède) 891
Drawing by H. L. Todd from No. 37923, U.S.N.M., collected by U. S. Fish Commission at Woods Hole, Massachusetts.

PLATE CXXXVIII.

377. **Nematistius pectoralis** Gill 895
Drawing by A. H. Baldwin.

378. **Oligoplites saurus** (Bloch and Schneider) 898
Drawing by H. L. Todd from No. 16354, U.S.N.M., collected by the U. S. Fish Commission at Menensha Bight.

PLATE CXXXIX.

379. **Naucrates ductor** Linnæus 900
Drawing by H. L. Todd from No. 23197, U.S.N.M., collected by William A. Bansett at New Bedford, Massachusetts.

380. **Seriola dorsalis** (Gill) 902
Drawing by H. L. Todd from a specimen collected by Jordan and Gilbert at San Pedro, California.

381. **Seriola zonata** (Mitchill) 902
Drawing by H. L. Todd from No. 18720, U.S.N.M., collected by V. N. Edwards at Woods Hole, Massachusetts.

PLATE CXL.

382. **Seriola lalandi** Cuvier and Valenciennes 903
Drawing by H. L. Todd from No. 37918, U.S.N.M., collected by the U. S. Fish Commission at Woods Hole, Massachusetts.

383. **Decapterus macarellus** (Cuvier and Valenciennes) 909
Drawing by H. L. Todd.

384. **Trachurus trachurus** (Linnæus) 910
Drawing by H. L. Todd from No. 23421, U.S.N.M., collected at Newport, Rhode Island.

PLATE CXLI.

385. **Trachurops crumenophthalmus** (Bloch) 911
Drawing by H. L. Todd from No. 20681, U.S.N.M., collected by V. N. Edwards, at Woods Hole, Massachusetts.

Text page.

386. **Hemicaranx amblyrhynchus** (Cuvier and Valenciennes).... 912
Drawing by H. L. Todd from No. 30177, U.S.N.M., collected by Silas Stearns, at Pensacola, Florida.

387. **Caranx hippos** (Linnæus) 920
Drawing by H. L. Todd from No. 10431, U.S.N.M., collected by V. N. Edwards, at Woods Hole, Massachusetts.

PLATE CXLII.

388. **Caranx latus** Agassiz... 921
Drawing by H. L. Todd from No. 20247, U.S.N.M., collected by V. N. Edwards, at Woods Hole, Massachusetts.

389. **Caranx crysos** (Mitchill).................................... 923
Drawing by H. L. Todd from No. 16512, U.S.N.M., collected by the U.S. Fish Commission at Woods Hole, Massachusetts.

PLATE CXLIII.

390. **Caranx medusicola** Jordan and Starks 924
Drawing by Anna L. Brown from the type, No. 2645, L. S. Jr. Univ. Mus., collected by the Hopkins Expedition at Mazatlan, Mexico.

391. **Hynnis hopkinsi** Jordan and Starks........................... 933
Drawing by Anna L. Brown from the type, No. 1563, L. S. Jr. Univ. Mus., collected by the Hopkins Expedition at Mazatlan, Mexico.

PLATE CXLIV.

392. **Vomer setipinnis** (Mitchill) 934
Drawing by H. L. Todd from No. 16252, U.S.N.M, obtained by E. G. Blackford in the Fulton Market, New York.

393. **Selene vomer** (Linnæus) 936
Drawing by H. L. Todd from No. 22007, U.S.N.M., a young example, collected by C. J. Copley at Stapleton, Staten Island.

PLATE CXLV.

393*a*. **Selene vomer** (Linnæus)................................... 936
Drawing by H. L. Todd from No. 22279, U.S.N.M., an adult.

394. **Chloroscombrus chrysurus** (Linnæus) 938
Drawing by H. L. Todd from No. 21286, U.S.N.M., collected by Dr. Goode in the St. Johns River, Florida.

PLATE CXLVI.

395. **Trachinotus glaucus** (Bloch)................................ 940
Drawing by H. L. Todd from No. 30176, U.S.N.M., collected by Silas Stearns at Pensacola, Florida.

396. **Trachinotus falcatus** (Linnæus)............................. 941
Drawing by H. L. Todd from No. 26585, U.S.N.M., collected by Silas Stearns in Florida.

PLATE CXLVII.

Text page.

397. **Trachinotus culveri** Jordan and Starks 942
Drawing by Anna L. Brown from the type, No. 2691, L. S. Jr. Univ. Mus., collected by the Hopkins Expedition at Mazatlan, Mexico.

398. **Trachinotus carolinus** (Linnæus) 944
Drawing by H. L. Todd from No. 10427, U.S.N.M., collected by S. F. Baird at Woods Hole, Massachusetts.

PLATE CXLVIII.

399. **Zalocys stilbe** Jordan and McGregor 2848
Drawing by Anna L. Brown from the type, No. 11996, L. S. Jr. Univ. Mus., collected by R. C. McGregor, at Clarion Island.

400. **Pomatomus saltatrix** (Linnæus) 946
Drawing by H. L. Todd, from a cast.

401. **Rachycentron canadus** (Linnæus) 948
Drawing by H. L. Todd from No. 18563, U.S.N.M.

PLATE CXLIX.

402. **Coryphæna hippurus** Linnæus 952
Drawing by H. L. Todd from No. 16482, U.S.N.M., obtained by E. G. Blackford in Fulton Market.

403. **Centrolophus niger** (Gmelin) 963
Drawing by S. F. Denton from a specimen obtained at Dennis, Massachusetts.

PLATE CL.

404. **Peprilus paru** (Linnæus) 965
Drawing by H. L. Todd from No. 15234, U.S.N.M.

405. **Poronotus triacanthus** (Peck) 967
Drawing by H. L. Todd from No. 787, U.S.N.M., collected by S. F. Baird at Beesleys Point, New Jersey.

PLATE CLI.

406. **Icichthys lockingtoni** Jordan and Gilbert 969
Drawing by A. H. Baldwin from No. 27397, U.S.N.M., collected at Point Reyes, California.

407. **Schedophilus medosophagus** Cocco 970
Drawing from H. L. Todd from a specimen collected by the *Albatross* in lat. 27° 49′ N., 76° 12′ W.

408. **Acrotus willoughbyi** Bean 973
Drawing by H. L. Todd from the type, No. 39340, U.S.N.M., collected by Chas. Willoughby at the Quinault Agency, west coast of Washington.

PLATE CLII.

Text page.

409. **Zaprora silenus** Jordan 2850
Drawing by Anna L. Brown from the type, in the Provincial Museum at Victoria, British Columbia, collected by H. T. Stainton, at Nanaimo, Vancouver Island.

410. **Grammicolepis brachiusculus** Poey 974
Drawing by A. H. Baldwin from a drawing by R. W. Shufeldt, Jour. Morph., Vol. II.

411. **Tetragonurus cuvieri** Risso 976
Drawing by Mary Hildebrandt from a specimen collected by V. N. Edwards at Woods Hole.

PLATE CLIII.

412. **Pempheris mulleri** Poey 978
Drawing by M. M. Smith from No. 37111, U.S.N.M., collected by the *Albatross* at Cozumel.

413. **Pempheris poeyi** Bean 979
Drawing by M. M. Smith from the type, No. 37184, U.S.N.M., collected by Prof. Poey in Cuba.

414. **Elassoma evergladei** Jordan 982
Drawing by A. H. Baldwin from a specimen collected by A. J. Woolman in Florida.

PLATE CLIV.

415. **Pomoxis annularis** Rafinesque 987
Drawing by H. L. Todd from No. 10387, U.S.N.M.

416. **Pomoxis sparoides** (Lacépède) 987
Drawing by H. L. Todd from No. 10077, U.S.N.M.

PLATE CLV.

417. **Centrarchus macropterus** (Lacépède) 988
Drawing by H. L. Todd from No. 20397, U.S.N.M., collected by W. S. Hyatt at Kingston, North Carolina.

418. **Acantharchus pomotis** (Baird) 989
Drawing by H. L. Todd from No. 6475, U.S.N.M., collected at Tarboro, North Carolina.

PLATE CLVI.

419. **Ambloplites rupestris** (Rafinesque) 990
Drawing by H. L. Todd from No. 9401, U.S.N.M., collected by George Clark at Ecorse, Michigan.

419, A, B, C. **Skull of Ambloplites rupestris** (Rafinesque) 990
Drawings from Boulenger's Catalogue of Perciform Fishes, Vol. I, p. 3.

PLATE CLVII.

Text page

420. **Archoplites interruptus** (Girard) 991
Drawing by H. L. Todd from No. 27137, U.S.N.M., collected by Dr. Jordan at San Francisco.

421. **Chænobryttus gulosus** (Cuvier and Valenciennes) 992
Drawing by H. L. Todd from No. 17863, U.S.N.M., collected by Kumlien and Bean in Jackson Lake, near Montgomery, Alabama.

PLATE CLVIII.

422. **Enneacanthus gloriosus** (Holbrook) 993
Drawing by H. L. Todd from No. 20358, U.S.N.M., collected by C. C. Abbott at Trenton, New Jersey.

423. **Mesogonistius chætodon** (Baird) 995
Drawing from No. 20354, U.S.N.M., collected by C. C. Abbott at Trenton, New Jersey.

PLATE CLIX.

424. **Apomotis symmetricus** (Forbes) 998
Drawing by A. H. Baldwin from a specimen collected by Evermann, Scovell, and Gurley in Kilpers Pond, Houston, Texas.

425. **Lepomis auritus** (Linnæus) 1001
Drawing by H. L. Todd.

425*a*. **Skull of Lepomis auritus** (Linnæus) 1001
Drawing from Boulenger's Catalogue of Perciform Fishes, Vol. I, p. 24.

PLATE CLX.

426. **Lepomis megalotis** (Rafinesque) 1002
Drawing by H. L. Todd from No. 36465, U.S.N.M., collected by Jordan and Gilbert in Saline River, Benton, Arkansas.

427. **Lepomis pallidus** (Mitchill) 1005
Drawing by H. L. Todd from No. 8448, U.S.N.M.

PLATE CLXI.

428. **Eupomotis euryorus** (McKay) 1008
Drawing by H. L. Todd from the type No. 4109, U.S.N.M., collected in Lake Huron, at Fort Gratiot, Michigan.

429. **Eupomotis gibbosus** (Linnæus) 1009
Drawing by H. L. Todd from No. 4163, U.S.N.M., collected by Professor Baird in Root River, Wisconsin.

PLATE CLXII.

430. **Micropterus dolomieu** Lacépède 1011
Drawing by H. L. Todd from No. 14143, U.S.N.M., obtained in the Washington market.

430*a*. **Vertebræ of Micropterus dolomieu** Lacépède 1011
From Boulenger's Catalogue Perciform Fishes. Vol. I, p. 4.

PLATE CLXIII.

Text page.

431. **Micropterus salmoides** (Lacépède) 1012
Drawing by H. L. Todd.

432. **Kuhlia rupestris** (Lacépède) ....
Drawings from Boulenger's Catalogue of Perciform Fishes, Vol. I, fig. 4, p. 35.

PLATE CLXIV.

433. **Stizostedion vitreum** (Mitchill) 1021
Drawing by H. L. Todd from No. 10072, U.S.N.M., collected by J. W. Milner at Rochester, New York.

433*a*. **Tail of Stizostedion vitreum** (Mitchill) 1021
Drawing by Anna L. Brown.

434. **Stizostedion canadense** (Smith) 1022
Drawing by H. L. Todd from No. 10555, U.S.N.M., collected by J. W. Milner at Ecorse, Michigan.

PLATE CLXV.

435. **Perca flavescens** (Mitchill) 1023
Drawing by H. L. Todd.

436. **Percina caprodes** (Rafinesque) 1026
Drawing by H. L. Todd from No. 34744, U.S.N.M., collected by H. G. Dresel in Licking County reservoir, Ohio.

436*a*. **Skull of Percina caprodes** (Rafinesque) 1026
Drawing from Boulenger's Catalogue of Perciform Fishes, Vol. I, fig. 7, p. 57.

PLATE CLXVI.

437. **Hadropterus macrocephalus** (Cope) 1031
Drawing by A. H. Baldwin from a specimen collected by Dr. Gurley in Indian Creek, near Cumberland Gap, Tennessee.

438. **Hadropterus aspro** (Cope and Jordan) 1032
Drawing by A. H. Baldwin from a specimen collected by Evermann, Scovell, and Gurley in Chickamauga Creek, at Lee and Gordon's mill, Georgia.

PLATE CLXVII.

439. **Hadropterus gruntheri** Eigenmann and Eigenmann 1033
Drawing by A. H. Baldwin from a specimen collected by A. J. Woolman in the Red River of the North, Moorehead, Minnesota.

440. **Hadropterus evides** (Jordan and Copeland) 1036
Drawing by A. H. Baldwin from a specimen collected by Evermann, Scovell, and Gurley in Clinch River, at Walkers Ford, Tennessee.

441. **Hadropterus scierus** Swain 1037
Drawing by A. H. Baldwin from a specimen collected by Evermann, Scovell, and Gurley in Clinch River, at Walkers Ford, Tennessee.

PLATE CLXVIII.

Text page.

442. **Hypohomus aurantiacus** (Cope) 1040
Drawing by A. H. Baldwin from a specimen collected by Evermann, Scovell, and Gurley in Clinch River, at Walkers Ford, Tennessee.

443. **Hypohomus spilotus** (Gilbert) 1043
Drawing by A. H. Baldwin.

444. **Cottogaster shumardi** (Girard) 1046
Drawing by H. L. Todd from No. 17852, U.S.N.M., collected by Dr. Jordan in the Wabash River, Indiana.

PLATE CLXIX.

445. **Cottogaster cheneyi** Evermann and Kendall 2851
Drawing by A. H. Baldwin from the type No. 48781, U.S.N.M., collected by Evermann and Bean in Racket River, Norfolk, New York.

446. **Ulocentra gilberti** Evermann and Thoburn 1049
Drawing by A. H. Baldwin from the type No. 47531, U.S.N.M., collected by Evermann, Scovell, and Gurley in Clinch River, Walkers Ford, Tennessee.

447. **Ulocentra meadiæ** Jordan and Evermann 2852
Drawing by A. H. Baldwin from the type No. 48903, U.S.N.M., collected by Dr. Gurley in Indian Creek, Cumberland Gap, Tennessee.

PLATE CLXX.

448. **Ulocentra simotera** (Cope) 1051
Drawing by A. H. Baldwin from a specimen collected by Evermann, Scovell, and Gurley in Arnwine Spring, Mount Verd, Tennessee.

449. **Diplesion blennioides** (Rafinesque) 1053
Drawing by A. H. Baldwin from a specimen collected by Evermann, Scovell, and Gurley in Clinch River, at Walkers Ford, Tennessee.

450. **Boleosoma nigrum** (Rafinesque) 1056
Drawing by A. H. Baldwin from a specimen collected by R. R. Gurley in Ball Creek, near Tazewell, Tennessee.

PLATE CLXXI.

451. **Boleosoma nigrum** olmstedi (Storer) 1057
Drawing by H. L. Todd from No. 30243, U.S.N.M., collected by Col. Marshall McDonald in the Potomac River, Gunston, Virginia.

452. **Boleosoma camurum** Forbes 1060
Drawing by H. L. Todd from the type No. 23455, U.S.N.M., collected by Dr. Jordan in the Illinois River.

453. **Crystallaria asprella** (Jordan) 1061
Drawing by A. H. Baldwin from No. 45455, U.S.N.M., collected by Dr. Evermann in the Wabash River, New Harmony, Indiana.

PLATE CLXXII.

Text page.

454. **Ammocrypta pellucida clara** (Jordan and Meek) 1063
Drawing by S. F. Denton from the type No. 35828, U.S.N.M., collected by Jordan and Meek in the Des Moines River, Ottumwa, Iowa.

455. **Ammocrypta beanii** Jordan 1064
Drawing by A. H. Baldwin from No. 17833, U.S.N.M., collected by Bean and Maxson in Notalbany River, Louisiana.

456. **Etheostoma camurum** (Cope) 1076
Drawing by A. H. Baldwin from a specimen collected by R. R. Gurley in Indian Creek, near Cumberland Gap, Tennessee.

PLATE CLXXIII.

457. **Etheostoma cinereum** Storer.................................. 1078
Drawing by A. H. Baldwin from a specimen collected by P. H. Kirsch in Wolf River, Byrdstown, Tennessee.

458. **Etheostoma jordani** Gilbert 1079
Drawing by S. F. Denton.

459. **Etheostoma pottsii** (Girard).................................. 1082
Drawing by H. L. Todd from No. 38245, U.S.N.M., the type of *Etheostoma micropterus* Gilbert, collected by E. Wilkinson in Chihuahua, Mexico.

PLATE CLXXIV.

460. **Etheostoma iowæ** Jordan and Meek.......................... 1083
Drawing by A. H. Baldwin from a specimen collected by A. J. Woolman in Pomme de Terre River, Appleton, Wisconsin.

461. **Etheostoma jessiæ** (Jordan and Brayton) 1084
Drawing by H. L. Todd from No. 27896, U.S.N.M., collected by Dr. Forbes, in Lake Peoria, Illinois.

462. **Etheostoma lepidogenys** Evermann and Kendall 1087
Drawing by A. H. Baldwin from the type, No. 44840, U.S.N.M., collected by Evermann, Scovell, and Gurley, in Comal Spring, New Braunfels, Texas.

PLATE CLXXV.

463. **Etheostoma obeyense** Kirsch 1092
Drawing by A. H. Baldwin from the type, No. 45565, U.S.N.M., collected by Dr. Kirsch, in tributary of Obeys River, Clinton County, Kentucky.

464. **Etheostoma pagei** Meek.. 1092
Drawing by A. H. Baldwin from the type, No. 45556, U.S.N.M., collected by Dr. Meek in Spring Branch at Neosho, Missouri.

465. **Etheostoma virgatum** (Jordan) 1093
Drawing by A. H. Baldwin from No. 36644, U.S.N.M., collected by Gilbert and Swain in Rock Castle River, Livingston, Kentucky.

PLATE CLXXVI.

Text page.

466. **Etheostoma juliæ** Meek 1093
Drawing by S. F. Denton from the type collected by Meek, Drew, and Rettger in James River, near Springfield, Missouri.

467. **Psychromaster tuscumbia** (Gilbert and Swain) 1100
Drawing by A. H. Baldwin from the type, No. 36154, U.S.N.M., collected by Gilbert and Swain in Spring Creek, Tuscumbia, Alabama.

468. **Copelandellus quiescens** (Jordan) 1100
Drawing by A. H. Baldwin.

PLATE CLXXVII.

469. **Boleichthys fusiformis** (Girard) 1101
Drawing by H. L. Todd from No. 36415, U.S.N.M., collected by Jordan and Gilbert in Washita River, Arkadelphia, Arkansas.

470. **Microperca fonticola** (Jordan and Gilbert) 1104
Drawing by Ernest Copeland from the type, No. 36523, U.S.N.M., collected by Jordan and Gilbert in San Marcos River, San Marcos, Texas.

471. **Apogon retrosella** (Gill) 1108
Drawing by Anna L. Brown from No. 2917. L. S. Jr. Univ. Mus., collected by the Hopkins expedition at Mazatlan, Mexico.

PLATE CLXXVIII.

472. **Apogon pigmentarius** (Poey) 1109

473. **Apogonichthys alutus** (Jordan & Gilbert) 1110
Drawing by A. H. Baldwin from No. 30874, U.S.N.M., collected by Jordan and Stearns at Pensacola, Florida.

PLATE CLXXIX.

474. **Cheilodipterus affinis** Poey 1113
Drawing by A. H. Baldwin from No. 37416. U.S.N.M., collected by Professor Poey in Cuba.

475. **Hypoclydonia bella** Goode and Bean 1115
Drawing by S. F. Denton from No. 39338, U.S.N.M., collected by the *Albatross* at Station 2426, in N. lat. 36° 01′ 30″, W. long. 74° 47′ 30″, in 93 fathoms.

476. **Centropomus undecimalis** (Bloch) 1118
Drawing by H. L. Todd from No. 19907, U.S.N.M.

PLATE CLXXX.

477. **Roccus chrysops** (Rafinesque) 1132
Drawing by H. L. Todd from No. 10326, U.S.N.M., collected by J. W. Milner at Sandusky, Ohio.

478. **Roccus lineatus** (Bloch) 1132
Drawing by H. L. Todd from No. 25219, U.S.N.M., obtained by Professor Baird in the Washington market.

PLATE CLXXXI.

Text page.

479. **Morore americana** (Gmelin) 1134
Drawing by H. L. Todd from No. 15861, U.S.N.M., received from the New York market.

480, 480*a*. **Polyprion americanus** (Bloch & Schneider) 1139
Drawings from Boulenger's Catalogue of Perciform Fishes Vol. I, fig. 12, p. 149.

PLATE CLXXXII.

481. **Bodianus fulvus punctatus** (Linnæus) 1146
Drawing by A. H. Baldwin from No. 33717, U.S.N.M., collected by J. C. Brevoort in the West Indies.

482. **Epinephelus adscensionis** (Osbeck) 1152
Drawing by H. L. Todd from No. 26574, U.S.N.M., collected by Silas Stearns, at Key West, Florida.

PLATE CLXXXIII.

483. **Epinephelus striatus** (Bloch) 1157
Drawing by H. L. Todd from No. 31910, U.S.N.M., collected by Silas Stearns at Pensacola, Florida.

484. **Epinephelus drummond-hayi** Goode and Bean 1159
Drawing by H. L. Todd from No. 31719, U.S.N.M., collected by Silas Stearns at Pensacola, Florida.

PLATE CLXXXIV.

485. **Epinephelus morio** (Cuvier and Valenciennes) 1160
Drawing by H. L. Todd from No. 22129, U.S.N.M., collected in Florida and obtained in the Washington market by Dr. Goode.

486. **Garrupa nigrita** (Holbrook) 1161
Drawing by H. L. Todd from No. 37207, U.S.N.M., collected by the *Albatross*.

PLATE CLXXXV.

487. **Promicrops itaiara** (Lichtenstein) 1162
Drawing by H. L. Todd from No. 22306, U.S.N.M., collected at mouth of St. Johns River, Florida.

487*a*, 487*b*. **Promicrops itaiara** (Lichtenstein) 1162
Drawings from Boulenger's Catalogue of Perciform Fishes, Vol. I, fig. 13, p. 164.

PLATE CLXXXVI.

488. **Alphestes chloropterus** (Cuvier and Valenciennes) 1164
Drawing by A. H. Baldwin from No. 9821, U.S.N.M., collected by Professor Poey in Cuba.

488*a*. **Alphestes chloropterus** (Cuvier and Valenciennes) 1164
Drawing from Boulenger's Catalogue of Perciform Fishes, Vol. I, fig. 18, p. 254.

	Text page.
489. **Dermatolepis zanclus** Evermann and Kendall Drawing by A. H. Baldwin from the type, No. 48843, U.S.N.M., collected by Evermann and Kendall at Key West, Florida.	2854

PLATE CLXXXVII.

490. **Mycteroperca boulengeri** Jordan and Starks Drawing by Anna L. Brown from the type, No. 1691, L. S. Jr. Univ. Mus., collected by the Hopkins expedition to Mazatlan, Mexico.	1171
491. **Mycteroperca venenosa** (Linnæus) Drawing by H.L. Todd from No. 35103, U.S.N.M., collected by Dr. Jordan at Havana, Cuba.	1172
492. **Skull of Mycteroperca bonaci** (Poey) Drawing from Boulenger's Catalogue of Perciform Fishes, Vol. I, fig. 19, p. 258.	1174

PLATE CLXXXVIII.

493. **Mycteroperca jordani** (Jenkins and Evermann) Drawing by A. H. Baldwin from the type, No. 39628, U.S.N.M., collected at Guaymas, Mexico, by Jenkins and Evermann.	1176
494. **Mycteroperca microlepis** (Goode and Bean) Drawing by H. L. Todd from No. 26587, U.S.N.M., collected by Silas Stearns at Key West, Florida.	1177
495. **Mycteroperca falcata phenax** Jordan and Swain Drawing by H. L. Todd from No. 34992, U.S.N.M., collected at Key West, Florida, by Dr. Jordan.	1185

PLATE CLXXXIX.

496. **Hypoplectrus unicolor nigricans** (Poey) Drawing by H. L. Todd from No. 3423, U.S.N.M., collected at Garden Key, Florida.	1193
497. **Hypoplectrus gemma** Goode and Bean Drawing by H. L. Todd from the type, No. 3422, U.S.N.M., collected at Garden Key, Florida.	1193

PLATE CXC.

498. **Paralabrax maculatofasciatus** (Steindachner) Drawing by A. H. Baldwin from No. 34754, U.S.N.M., collected by Rosa Smith at San Diego, California.	1196
499. **Skull of Paralabrax humeralis** (Cuvier and Valenciennes) Drawing from Boulenger's Catalogue of Perciform Fishes, Vol. I, fig. 20, p. 275.	1196
500. **Centropristes striatus** (Linnæus) Drawing by H. L. Todd from No. 14838, U.S.N.M., collected by the U. S. Fish Commission at Noank, Connecticut.	1199

PLATE CXCI.

Text page.

501. **Centropristes philadelphicus** (Linnæus) 1201
Drawing by A. H. Baldwin from No. 33161, U.S.N.M., collected by Dr. Gilbert at Charleston, South Carolina.

502. **Diplectrum formosum** (Linnæus) 1207
Drawing by H. L. Todd from No. 21543, U.S.N.M., collected by C. C. Leslie at Charleston, South Carolina.

503. **Prionodes bulleri** (Boulenger) 1213
Drawing from Boulenger's Catalogue of Perciform Fishes, Vol. I, pl. X.

PLATE CXCII.

504. **Paranthias furcifer** (Cuvier and Valenciennes) 1221
Drawing by A. H. Baldwin from No. 12540, U.S.N.M., collected by Professor Poey in Cuba.

505. **Hemianthias vivanus** (Jordan and Swain) 1223
Drawing by W. S. Atkinson from specimen No. 1655, L. S. Jr. Univ. Mus., collected by Dr. Jordan at Pensacola, Florida.

506. **Pronotogrammus multifasciatus** Gill 1226
Drawing by H. L. Todd from the type, No. 2762, U.S.N.M., collected by John Xantus at Cape San Lucas, Lower California.

PLATE CXCIII.

507. **Anthias asperilinguis** Günther 1227
Drawing from Boulenger's Catalogue of Perciform Fishes, Vol. I, pl. XIII.

508. **Gramma loreto** Poey 1229
Drawing by J. W. Folsom from the type, No. 10031, M.C.Z., collected by Professor Poey at Matanzas, Cuba.

PLATE CXCIV.

509. **Rypticus bistrispinus** (Mitchill) 1233
Drawing by H. L. Todd.

510. **Lobotes surinamensis** (Bloch) 1235
Drawing by H. L. Todd.

PLATE CXCV.

511. **Priacanthus arenatus** Cuvier and Valenciennes 1237
Drawing by H. L. Todd from No. 20680, U.S.N.M., collected by V. N. Edwards at Woods Hole, Massachusetts.

512. **Pseudopriacanthus altus** Gill 1239
Drawing by H. L. Todd from No. 2317, U.S.N.M., collected by the *Albatross* off Key West, Florida.

PLATE CXCVI.

Text page.

513. **Hoplopagrus guntheri** Gill 1244
Drawing by A. H. Baldwin from No. 28367, U.S.N.M., collected by Dr. Gilbert at Mazatlan, Mexico.

514. **Evoplites viridis** (Valenciennes) 1246
Drawing by W. S. Atkinson from a specimen collected by Alfonce Forrer at Tres Marias Islands, Mexico.

PLATE CXCVII.

515. **Neomænis apodus** (Walbaum) 1258
Drawing by H. L. Todd from No. 33220, U.S.N.M., collected by Dr. Henshall at Indian River Inlet, Florida.

516. **Neomænus aya** (Bloch) 1264
Drawing by A. H. Baldwin from a specimen obtained in the Washington Market.

PLATE CXCVIII.

517. **Neomænis analis** (Cuvier and Valenciennes) 1265
Drawing by H. L. Todd from No. 35030, U.S.N.M.

518. **Neomænis synagris** (Linnæus) 1266
Drawing by H. L. Todd from No. 36922, U.S.N.M., collected by the U. S. Fish Commission at Key West, Florida.

PLATE CXCIX.

519. **Rabirubia inermis** (Peters) 1274
Drawing by Anna L. Brown from No. 4983, L. S. Jr. Univ. Mus., collected by the *Albatross* at Panama.

520. **Ocyurus chrysurus** (Bloch) 1275
Drawing by S. F. Denton from No. 26583, U.S.N.M., collected by Silas Stearns at Key West, Florida.

PLATE CC.

521. **Rhomboplites aurorubens** (Cuvier and Valenciennes) 1277
Drawing by H. L. Todd from No. 21338, U.S.N.M., collected by Silas Stearns at Pensacola, Florida.

522. **Apsilus dentatus** Guichenot 1278
Drawing by A. H. Baldwin from No. 9809, U.S.N.M., collected by Professor Poey in Cuba.

PLATE CCI.

523. **Aprion macrophthalmus** (Müller and Troschel) 1280
Drawing by M. M. Smith from a specimen collected by the *Blake* in N. lat. 23° 13′, W. long. 89° 10′, in 84 fathoms.

524. **Etelis oculatus** (Cuvier and Valenciennes) 1282
Drawing by A. H. Baldwin from No. 35049, U.S.N.M., collected by Dr. Jordan at Havana, Cuba.

PLATE CCII.

Text page.

525. **Verilus sordidus** Poey 1284
Drawing by A. H. Baldwin from No. 12565, U.S.N.M., collected by Professor Poey in Cuba.

526. **Xenocys jessiæ** Jordan and Bollman 1285
Drawing by A. H. Baldwin from the type, No. 41166, U.S.N.M., collected by the *Albatross* at Charles Island, Galapagos Group.

PLATE CCIII.

527. **Xenichthys agassizii** Steindachner 1287
Drawing by A. H. Baldwin from No. 26671, U.S.N.M., collected in the Galapagos Islands.

528. **Hæmulon album** Cuvier and Valenciennes 1295
Drawing by H. L. Todd from No. 35035, U.S.N.M., collected at Key West, Florida, by Dr. Jordan.

PLATE CCIV.

529. **Hæmulon macrostomum** Günther 1296
Drawing by H. L. Todd from No. 30057, U.S.N.M., received from the Kingston Public Museum, Jamaica.

530. **Hæmulon parra** (Desmarest) 1297
Drawing by H. L. Todd.

PLATE CCV.

531. **Hæmulon sciurus** (Shaw) 1303
Drawing by H. L. Todd from No. 32603, U.S.N.M., collected at Key West, Florida, by J. A. Henshall.

532. **Hæmulon plumieri** (Lacépède) 1304
Drawing by H. L. Todd from No. 20980, U.S.N.M., collected by Dr. Goode at Charleston, South Carolina.

PLATE CCVI.

533. **Brachygenys chrysargyreus** (Günther) 1307
Drawing by H. L. Todd from No. 35150, U.S.N.M., collected at Havana, Cuba, by Dr. Jordan.

534. **Bathystoma rimator** (Jordan and Swain) 1308
Drawing by H. L. Todd from No. 34957, U.S.N.M., collected by the *Albatross* at St. Thomas, West Indies.

PLATE CCVII.

535. **Bathystoma aurolineatum** (Cuvier and Valenciennes) 1310
Drawing by H. L. Todd from No. 26567, U.S.N.M., collected by Silas Stearns at Key West, Florida.

536. **Lythrulon opalescens** Jordan and Starks 1312
Drawing by Anna L. Brown from the type, No. 2963, L. S. Jr. Univ. Mus., collected by the Hopkins Expedition at Mazatlan, Mexico.

PLATE CCVIII.

Text page.

537. **Anisotremus surinamensis** (Bloch) 1318
Drawing by A. H. Baldwin from a specimen collected by Evermann and Bean in Indian River at Fort Pierce, Florida.

538. **Anisotremus bilineatus** (Cuvier and Valenciennes) 1319
Drawing by H. L. Todd from No. 30878, U.S.N.M., collected by Dr. J. A. Henshall in Indian River Inlet, Florida.

PLATE CCIX.

539. **Anisotremus virginicus** (Linnæus) 1322
Drawing by H. L. Todd from No. 33189, U.S.N.M., collected by Dr. J. A. Henshall at Key West, Florida.

540. **Orthopristis reddingi** Jordan and Richardson 1336
Drawing by Anna L. Brown from the type, No. 3458, L. S. Jr. Univ. Mus., collected by J. A. Richardson in La Paz Harbor, Lower California.

PLATE CCX.

541. **Orthopristis chrysopterus** (Linnæus) 1338
Drawing by H. L. Todd from No. 3113, U.S.N.M., collected at Pensacola, Florida.

542. **Microlepidotus inornatus** Gill 1341
Drawing by A. H. Baldwin, from No. 43267, U.S.N.M., collected by Evermann and Jenkins at Guaymas, Mexico.

PLATE CCXI.

543. **Otrynter caprinus** (Bean) 1345
Drawing by H. L. Todd from No. 32683, U.S.N.M., collected by Silas Stearns at Pensacola, Florida.

544. **Stenotomus chrysops** (Linnæus) 1346
Drawing by H. L. Todd from No. 10425, U.S.N.M., collected by Professor Baird at Woods Hole, Massachusetts.

PLATE CCXII.

545. **Stenotomus aculeatus** (Cuvier and Valenciennes) 1346
Drawing by H. L. Todd from No. 24694, U.S.N.M., collected by R. E. Earll near Charleston, South Carolina.

546. **Calamus calamus** (Cuvier and Valenciennes) 1349
Drawing by H. L. Todd from No. 35040, U.S.N.M., collected by Dr. Jordan at Key West, Florida.

PLATE CCXIII.

547. **Calamus proridens** Jordan and Gilbert 1350
Drawing by H. L. Todd from No. 35056, U.S.N.M., collected by Dr. Jordan at Key West, Florida.

548. **Calamus bajonado** (Bloch and Schneider) 1352
Drawing by H. L. Todd from No. 35042, U.S.N.M., collected by Dr. Jordan at Key West, Florida.

PLATE CCXIV.

Text page.

549. **Calamus penna** (Cuvier and Valenciennes) 1354
Drawing by H. L. Todd from No. 6134, U.S.N.M., collected in Charlotte Harbor, Florida.

550. **Calamus arctifrons** Goode and Bean...................... 1355
Drawing by H. L. Todd from the type, No. 30163, U.S.N.M., collected by Silas Stearns at Pensacola, Florida.

PLATE CCXV.

551. **Pagrus pagrus** (Linnæus).................................. 1356
Drawing by H. L. Todd from a specimen collected by Silas Stearns at Pensacola, Florida.

552. **Lagodon rhomboides** (Linnæus) 1358
Drawing by H. L. Todd from No. 21280, U.S.N.M., collected by Dr. Goode in St. Johns River, Florida.

PLATE CCXVI.

553. **Archosargus unimaculatus** (Bloch) 1359
Drawing by H. L. Todd from No. 35031, U.S.N.M., collected by Dr. Jordan at Key West, Florida.

554. **Archosargus probatocephalus** (Walbaum)................. 1361
Drawing by H. L. Todd from No. 19647, U.S.N.M., collected by Dr. H. C. Yarrow at Beaufort, North Carolina.

PLATE CCXVII.

555. **Diplodus holbrookii** (Bean) 1362
Drawing by H. L. Todd from No. 32632, U.S.N.M., collected at Pensacola, Florida.

555*a*. **Diplodus holbrookii** (Bean) 1362
Drawing by H. L. Todd from a young example, No. 4693, U.S.N.M.

PLATE CCXVIII.

556. **Xystema cinereum** (Walbaum)............................. 1372
Drawing by H. L. Todd from No. 35054, U.S.N.M., collected by Dr. Jordan at Key West, Florida.

557. **Gerres olisthostomus** Goode and Bean...................... 1376
Drawing by H. L. Todd from the type, No. 25118, U.S.N.M., collected by R. E. Earll in Indian River, Florida.

PLATE CCXIX.

558. **Hermosilla azurea** Jenkins and Evermann.................. 1383
Drawing by A. H. Baldwin from the type, No. 36269, U.S.N.M., collected by Jenkins and Evermann at Guaymas, Mexico.

559. **Kyphosus sectatrix** (Linnæus)............................. 1387
Drawing by H. L. Todd from No. 20635, U.S.N.M., collected at Woods Hole, Massachusetts.

PLATE CCXX.

Text page.

560. **Medialuna californiensis** (Steindachner) 1391
Drawing by H. L. Todd.

561. **Cynoscion nothus** (Holbrook) 1406
Drawing by H. L. Todd from No. 34921, U.S.N.M., collected by the *Albatross* at Trinidad, West Indies.

562. **Cynoscion regalis** (Bloch and Schneider) 1407

PLATE CCXXI.

563. **Cynoscion nebulosus** (Cuvier and Valenciennes) 1409
Drawing by H. L. Todd.

564. **Sagenichthys ancylodon** (Bloch and Schneider) 1416
Drawing by A. H. Baldwin from No. 29722, U.S.N.M., collected by Dr. Gilbert at Panama.

565. **Larimus argenteus** (Gill) 1421
Drawing by Anna L. Brown from a specimen in L. S. Jr. Univ. Mus.

PLATE CCXXII.

566. **Bairdiella chrysura** (Lacépède) 1433
Drawing by H. L. Todd.

567. **Sciænops ocellatus** (Linnæus) 1453
Drawing by H. L. Todd from No. 622, U.S.N.M., collected by Dr. Kennerly at Indianola, Texas.

PLATE CCXXIII.

568. **Roncador stearnsi** (Steindachner) 1557
Drawing by H. L. Todd from No. 26864, U.S.N.M., collected by Dr. Jordan at Santa Barbara, California.

569. **Leiostomus xanthurus** Lacépède 1458
Drawing by H. L. Todd from No. 20222, U.S.N.M., collected by Samuel Powell at Newport, Rhode Island.

PLATE CCXXIV.

570. **Micropogon undulatus** (Linnæus) 1461
Drawing by H. L. Todd from No. 20742, U.S.N.M., collected by Samuel Powell at Newport, Rhode Island.

571. **Umbrina sinaloæ** Scofield 1468
Drawing by Anna L. Brown from the type, No. 1632, L. S. Jr. Univ. Mus., collected by the Hopkins Expedition at Mazatlan, Mexico.

PLATE CCXXV.

572. **Menticirrhus americanus** (Linnæus) 1474
Drawing by H. L. Todd from No. 22832, U.S.N.M., collected by Silas Stearns at Pensacola, Florida.

573. **Pogonias chromis** (Linnæus) 1482
Drawing by H. L. Todd from No. 18036, U.S.N.M., collected by J. C. Willetts at Matanzas River Inlet, Florida.

PLATE CCXXVI.

Text page.

574. **Aplidonotus grunniens** Rafinesque 1484
Drawing by H. L. Todd from No. 10542, U.S.N.M., collected by J. W. Milner at Ecorse, Michigan.

575. **Eques lanceolatus** (Linnæus) 1489
Drawing by H. L. Todd from No. 32097, U.S.N.M., collected by Professor Poey in Cuba.

PLATE CCXXVII.

576. **Cirrhites rivulatus** Valenciennes 1491
Drawing by A. H. Baldwin from a specimen collected by the *Albatross* in the Pacific.

577. **Hysterocarpus traski** Gibbons.............................. 1496
Drawing by J. C. Van Hook.

PLATE CCXXVIII.

578. **Abeona minima** (Gibbons)................................... 1497
Drawing by A. H. Baldwin from No. 26913, U.S.N.M., collected by Dr. Jordan at Santa Barbara, California.

579. **Cymatogaster aggregatus** Gibbons.......................... 1498
Drawing by M. M. Smith from No. 31971, U.S.N.M., a male, collected at Fort Wrangell, Alaska, by Capt. H. E. Nichols.

579*a*. **Cymatogaster aggregatus** Gibbons......................... 1498
Drawing by W. S. Atkinson from a specimen in L. S. Jr. Univ. Mus.

PLATE CCXXIX.

580. **Brachyistius frenatus** Gill................................ 1499
Drawing by A. H. Baldwin from No. 26990, U.S.N.M., collected by Dr. Jordan in Monterey Bay, California.

581. **Zalembius rosaceus** (Jordan and Gilbert)................... 1500
Drawing by W. S. Atkinson from a specimen in L. S. Jr. Univ. Mus.

PLATE CCXXX.

582. **Hypocritichthys analis** (A. Agassiz)....................... 1500
Drawing by A. H. Baldwin from No. 27075, U.S.N.M., collected by Dr. Jordan in Monterey Bay, California.

583. **Phanerodon furcatus** Girard................................ 1506
Drawing by A. H. Baldwin from No. 24905, U.S.N.M., collected by Dr. Jordan at San Diego, California.

PLATE CCXXXI.

584. **Rhacochilus toxotes** Agassiz................................ 1507
Drawing from No. 27015, U.S.N.M., collected by Dr. Jordan at Monterey, California.

585. **Hypsurus caryi** (Agassiz).................................. 1508
Drawing by W. S. Atkinson from a specimen in L. S. Jr. Univ. Mus.

PLATE CCXXXII.

Text page.

586. **Damalichthys argyrosomus** (Girard) 1509
Drawing by H. L. Todd from No. 29811, U.S.N.M., collected by Capt. H. E. Nichols in Friendly Cove, British Columbia.

587. **Cichlasoma bartoni** (Bean) 1515
Drawing by A. H. Baldwin from the type, No. 43765, U.S.N.M., collected by Professor Dugès at Huazteca Potosina, San Luis Potosi, Mexico.

PLATE CCXXXIII.

588. **Azurina hirundo** Jordan and McGregor 1544
Drawing by Anna L. Brown from the type, collected by R. C. McGregor at Guadalupe Island.

589. **Eupomacentrus rectifrenum** (Gill) 1557; 3176
Drawing by Anna L. Brown from No. 3460, L. S. Jr. Univ. Mus., collected by the Hopkins Expedition at Mazatlan, Mexico.

PLATE CCXXXIV.

590. **Abudefduf saxatilis** (Linnæus) 1561
Drawing by A. H. Baldwin from No. 33688, U.S.N.M, collected by J. C. Brevoort in the West Indies.

591. **Hypsypops rubicundus** (Girard) 1564
Drawing by W. S. Atkinson from No. 43080, U.S.N.M., collected by Rosa Smith at San Diego, California.

PLATE CCXXXV.

592. **Microspathodon bairdii** (Gill) 1566
Drawing by Anna L. Brown from No. 2940, L. S. Jr. Univ. Mus., collected by the Hopkins Expedition at Mazatlan, Mexico.

593. **Microspathodon chrysurus** (Cuvier and Valenciennes) 1567
Drawing by A. H. Baldwin from No. 13042; U.S.N.M., collected by Professor Poey in Cuba.

PLATE CCXXXVI.

594. **Microspathodon dorsalis** (Gill) 1568
Drawing by Anna L. Brown from No. 2895, L. S. Jr. Univ. Mus., type of *M. azurissimus* Jordan and Starks, collected by the Hopkins Expedition at Venados Island, Mazatlan, Mexico.

595. **Tautogolabrus adspersus** (Walbaum) 1577
Drawing by H. L. Todd from No. 17745, U.S.N.M., collected by V. N. Edwards at Woods Hole, Massachusetts.

PLATE CCXXXVII.

Text page.

596. **Tautoga onitis** (Linnæus) 1578
Drawing by H. L. Todd from No. 17738, U.S.N.M., collected by V. N. Edwards at Woods Hole, Massachusetts.

597. **Lachnolaimus maximus** (Walbaum) 1579
Drawing by H. L. Todd.

PLATE CCXXXVIII.

598. **Pimelometopon pulcher** (Ayres) 1585
Drawing by H. L. Todd from No. 24890, U.S.N.M., collected by Dr. Jordan at San Diego, California.

599. **Clepticus parræ** (Bloch and Schneider) 1586
Drawing by A. H. Baldwin from No. 9797, U.S.N.M., collected by Professor Poey in Cuba.

PLATE CCXXXIX.

600. **Iridio radiatus** (Linnæus) 1590
Drawing by H. L. Todd from No. 31168, U.S.N.M., collected at Key West, Florida.

601. **Irido bivittatus** (Bloch) 1595
Drawing by A. H. Baldwin from No. 35168, U.S.N.M., collected at Key West, Florida.

PLATE CCXL.

602. **Iridio dispilus** (Günther) 1597
Drawing by Anna L. Brown from No. 2904, L. S. Jr. Univ. Mus., collected by the Hopkins Expedition in the Astillero at Mazatlan, Mexico.

603. **Emmeekia venusta** (Jenkins & Evermann) 1602
Drawing by A. H. Baldwin from the type, No. 39631, U.S.N.M., collected by Jenkins & Evermann at Guaymas, Mexico.

PLATE CCXLI.

604. **Chlorichthys grammaticus** (Gilbert) 1610
Drawing by A. H. Baldwin from No. 46934, U.S.N.M., collected by the *Albatross* at Socorro Island.

605. **Novaculichthys ventralis** (Bean) 1615
Drawing by S. F. Denton from the type, No. 37077, U.S.N.M., collected by Dr. Bean at Cozumel Island.

606. **Novaculichthys infirmus** (Bean) 1616
Drawing by H. L. Todd from the type, No. 37076, U.S.N.M., collected by Dr. Bean at Cozumel Island.

PLATE CCXLII.

607. **Xyrichthys psitticus** (Linnæus) 1618
Drawing by H. L. Todd from No. 5815, U.S.N.M., collected by Dr. Whitehurst at Garden Key, Florida.

608. **Crytotomus beryllinus** (Jordan and Swain) 1625
Drawing by H. L. Todd from a specimen collected by the *Albatross.*

PLATE CCXLIII.

Text page.

609, 609*a*. **Calotomus xenodon** Gilbert 1626
Drawings by A. H. Baldwin from No. 46935, U.S.N.M., collected by the *Albatross* at Socorro Island.

610. **Sparisoma aurofrenatum** (Cuvier and Valenciennes) 1634
Drawing by Anna L. Brown from a specimen in L. S. Jr. Univ. Mus.

PLATE CCXLIV.

611. **Sparisoma hoplomystax** (Cope) 1632
Drawing by H. L. Todd from No. 35173, U.S.N.M., type of *S. cyanolene* Jordan and Swain, collected by Jordan and Dye at Key West, Florida.

612. **Scarus cuzamilæ** Bean 1648
Drawing by S. F. Denton from the type, No. 37128, U.S.N.M., collected by Dr. Bean at Cozumel Island.

613. **Jaws of Scarus cæruleus** (Bloch) 1652
Drawing by Anna L. Brown from a specimen in L. S. Jr. Univ. Mus.

PLATE CCXLV.

614. **Scarus emblematicus** Jordan and Rutter.................... 1654
Drawing by W. S. Atkinson from the type in L. S. Jr. Univ. Mus., collected by Rev. J. S. Roberts in Jamaica.

615, 615*a*. **Scarus strongylocephalus** ....
Lower and upper pharyngeal bones. Drawings by Anna L. Brown.

616, 616*a*. **Sparisoma cretense**..................................
Lower and upper pharyngeal bones. Drawings by Anna L. Brown.

PLATE CCXLVI.

617. **Pseudoscarus guacamaia** (Cuvier).......................... 1657
Drawing by H. L. Todd.

618. **Zenopsis ocellatus** (Storer) 1660
Drawing from a specimen in the Boston Society of Natural History.

PLATE CCXLVII.

619. **Chætodipterus faber** (Broussonet).......................... 1668
Drawing by H. L. Todd from No. 22921, U.S.N.M., from east coast of United States.

PLATE CCXLVIII.

620. **Chætodon nigrirostris** (Gill)............................... 1673
Drawing by W. S. Atkinson from No. 5981, L. S. Jr. Univ. Mus., collected by R. C. McGregor at Clarion Island.

PLATE CCXLIX.

Text page.

621. **Chætodon ocellatus** (Bloch) 1674
Drawing by W. S. Haines. Specimen collected by Dr. Bean at Beesley's Point, New Jersey.

PLATE CCL.

622. **Chætodon capistratus** Linnæus.................................. 1677
Drawing by M. M. Smith from No. 30143, U.S.N.M., received from the Public Museum of Kingston, Jamaica.

PLATE CCLI.

623. **Pomacanthus arcuatus** (Linnæus) 1679
Drawing by H. L. Todd from No. 33197, U.S.N.M., collected by Lewis G. Mitchell at Barnegat, New Jersey.

PLATE CCLII.

624. **Pomacanthus zonipectus** (Gill).................................. 1681
Drawing from No. 31482, U.S.N.M., collected by Kaiser and Martin in West Florida.

PLATE CCLIII.

625. **Holacanthus tricolor** (Bloch) 1684
Drawing by A. H. Baldwin from a specimen collected by Dr. Evermann at Arroyo, Puerto Rico.

PLATE CCLIV.

626. **Angelichthys ciliaris** (Linnæus).................................. 1684
Drawing by A. H. Baldwin from No. 30023, U.S.N.M., received from the Public Museum at Kingston, Jamaica.

626*a*. **Angelichthys ciliaris** (Linnæus), skeleton showing vertebræ reduced in number and enlarged 1684
Drawing by W. S. Atkinson from a specimen in L. S. Jr. Univ. Mus.

PLATE CCLV.

627. **Zanclus cornutus** (Linnæus) 1687
Drawing by W. S. Atkinson from a specimen in L. S. Jr. Univ. Mus.

PLATE CCLVI.

628. **Teuthis crestonis** Jordan and Starks.............................. 1692
Drawing by Anna L. Brown from the type, No. 2899, L. S. Jr. Univ. Mus., collected by the Hopkins Expedition in the Astillero at Mazatlan, Mexico.

629. **Teuthis bahianus** (Castelnau) 1693
Drawing by H. L. Todd from No. 3424, U.S.N.M., collected at Garden Key, Florida.

PLATE CCLVII.

	Text page.
629*a*. **Tail of Teuthis bahianus** (Castelnau)	1693
630. **Xesurus punctatus** (Gill) Drawing by Anna L. Brown from No. 2911, U.S.N.M., collected by the Hopkins Expedition at Mazatlan, Mexico.	1694

PLATE CCLVIII.

631. **Balistes carolinensis** Gmelin Drawing by H. L. Todd from No. 15233, U.S.N.M., collected at New York.	1701
632. **Cantherines carolæ** Jordan and McGregor Drawing by Anna L. Brown from the type, No. 11995, L. S. Jr. Univ. Mus., collected by R. C. McGregor at Socorro Island.	1713

PLATE CCLIX.

633. **Monacanthus ciliatus** (Mitchill) Drawing by W. S. Haines.	1714
634. **Monacanthus hispidus** (Linnæus) Drawing by W. S. Haines.	1715

PLATE CCLX.

635. **Alutera schœpfii** (Walbaum) Drawing by W. S. Haines from No. 6068, U.S.N.M., collected by Judge Steele at Cedar Keys, Florida.	1718
636. **Alutera scripta** (Osbeck) Drawing by W. S. Haines from No. 34397, U.S.N.M., collected by V. N. Edwards at Woods Hole, Massachusetts.	1719

PLATE CCLXI.

637. **Lactophrys triqueter** (Linnæus) Drawing by W. S. Haines from No. 5989, U.S.N.M., collected at Garden Key, Florida, by Dr. Whitehurst.	1722
638. **Lactophrys tricornis** (Linnæus) Drawing by W. S. Haines from No. 21548, U.S.N.M., collected by C. C. Leslie at Charleston, South Carolina.	1724

PLATE CCLXII.

639, 639*a*, 639*b*. **Lactophrys bicaudalis** (Linnæus) Drawings by H. L. Todd from No. 37130, U.S.N.M., collected at Cozumel Island by the *Albatross;* 640a, ventral view; 640b, front view.	1723

PLATE CCLXIII.

640, 640*a*. **Lactophrys trigonus** (Linnæus) Drawing by H. L. Todd from No. 7987, U.S.N.M., collected at Garden Key, Florida, by Dr. Whitehurst.	1723
641. **Lagocephalus lævigatus** (Linnæus) Drawing by H. L. Todd from No. 35135, U.S.N.M.	1728

PLATE CCLXIV.

Text page.

642. **Spheroides nephelus** Goode and Bean 1732
Drawing by H. L. Todd from No. 31428, U.S.N.M., the type, collected by R. E. Earll in Indian River, Florida.

643. **Spheroides spengleri** (Bloch)................................ 1732
Drawing from No. 20608, U.S.N.M., collected by V. N. Edwards at Woods Hole, Massachusetts.

644. **Spheroides maculatus** (Bloch and Schneider)................ 1733
Drawing by W. S. Haines from No. 14827, U.S.N.M., collected by the U. S. Fish Commission at Noank, Connecticut.

PLATE CCLXV.

645, 645*a*. **Spheroides testudineus** (Linnæus)................... 1734
Drawings by H. L. Todd from No. 30060, U.S.N.M., received from the museum at Kingston, Jamaica.

646. **Ovoides setosus** (Rosa Smith)............................. 1739
Drawing by W. S. Atkinson from No. 319, L. S. Jr. Univ. Mus., collected by the *Albatross* at Clarion Island.

PLATE CCLXVI.

647. **Diodon hystrix** Linnæus.................................... 1745
Drawing by H. L. Todd from No. 5985, U.S.N.M., collected by H. E. Wright at Tortugas Islands.

648. **Chilomycterus schœpfi** (Walbaum)......................... 1748
Drawing from a specimen collected at Noank, Connecticut.

PLATE CCLXVII.

649. **Lyosphæra globosa** Evermann and Kendall................. 1751
Drawing by A. H. Baldwin from the type, No. 48794, U.S.N.M., collected by W. C. Kendall in the Rappahannock River, Virginia.

649*a*. **Lyosphæra globosa** Evermann and Kendall................ 1751
Drawing by A. H. Baldwin from the cotype, a young example collected by Evermann and Kendall at Cape Florida, Florida.

650. **Mola mola** (Linnæus).. 1753
Drawing taken from a washed drawing taken from a cast.

PLATE CCLXVIII.

651. **Ranzania truncata** (Retzius).............................. 1755
Drawing from a specimen collected in the Bermudas.

652. **Sebastes marinus** (Linnæus)................................ 1760
Drawing by H. L. Todd.

PLATE CCLXIX.

Text page.

653. **Sebastolobus altivelis** Gilbert 1763
Drawing by A. H. Baldwin from the type collected by the *Albatross* at Station 3338, south of the Alaskan Peninsula, in 625 fathoms.

654. **Sebastodes melanops** (Girard) 1782
Drawing by H. L. Todd from No. 27628, U.S.N.M., collected by Dr. Bean at Sitka, Alaska.

PLATE CCLXX.

655. **Sebastodes ciliatus** (Tilesius) 1783
Drawing by H. L. Todd from No. 32014, U.S.N.M., collected in Tolstoi Bay, Alaska, by Capt. H. E. Nichols.

656. **Sebastodes mystinus** (Jordan and Gilbert) 1784
Drawing by H. L. Todd from No. 27031, U.S.N.M., collected by Dr. Jordan at Monterey, California.

PLATE CCLXXI.

657. **Sebastodes brevispinis** (Bean) 1787
Drawing by W. S. Haines from the type, No. 32004, U.S.N.M., collected by Capt. H. E. Nichols in Hassler Harbor, Alaska.

658. **Sebastodes eigenmanni** Cramer 1789
Drawing by Anna L. Brown from the type, No. 4046, L. S. Jr. Univ. Mus., collected by Dr. W. W. Thoburn at Pacific Grove, California.

PLATE CCLXXII.

659. **Sebastodes hopkinsi** Cramer 1789
Drawing by Anna L. Brown from the type, No. 2282, L. S. Jr. Univ. Mus., collected by Gilbert and Starks at Pacific Grove, California.

660. **Sebastodes alutus** (Gilbert) 1790
Drawing by A. H. Baldwin from the type, No. 48244, U.S.N.M., collected by the *Albatross* at Station 3339, Santa Barbara Islands.

PLATE CCLXXIII.

661. **Sebastodes pinniger** (Gill) 1793
Drawing by H. L. Todd from No. 27488, U.S.N.M., collected by J. G. Swan at Neah Bay, Washington.

662. **Sebastodes miniatus** (Jordan and Gilbert) 1794
Drawing by W. S. Atkinson from a specimen in L. S. Jr. Univ. Mus., showing vertebræ in moderate number, relatively increased in size.

PLATE CCLXXIV.

Text page.

663. **Sebastodes caurinus** (Richardson) 1820
Drawing by H. L. Todd from No. 31999, U.S.N.M., collected by Capt. H. E. Nichols in Departure Bay, British Columbia.

664. **Sebastodes maliger** (Jordan and Gilbert) 1822
Drawing by H. L. Todd from No. 27713, U.S.N.M., collected by Dr. Bean at Sitka, Alaska.

PLATE CCLXXV.

665. **Sebastodes gilberti** Cramer 1823
Drawing by Anna L. Brown from the type, No. 3893, L. S. Jr. Univ. Mus., collected by Dr. Jordan in the San Francisco market.

666. **Sebastodes serriceps** (Jordan and Gilbert).................. 1827
Drawing by H. L. Todd from No. 27041, U.S.N.M., collected by Dr. Jordan at Monterey, California.

PLATE CCLXXVI.

667. **Sebastodes nigrocinctus** (Ayres)........................ 1827
Drawing by H. L. Todd from No. 27285, U.S.N.M., collected by Dr. Jordan in Puget Sound.

668. **Scorpæna cristulata** Goode and Bean........................ 1841
Drawing by H. L. Todd from the type, No. 39326, U.S.N.M., collected by the *Albatross* at Station 2415, in N. lat. 30° 44′, W. long. 79° 26′, off Georgia, in 440 fathoms.

PLATE CCLXXVII.

669. **Scorpæna brasiliensis** Cuvier and Valenciennes 1842
Drawing by H. L. Todd from No. 30169, U.S.N.M., collected by Silas Stearns at Pensacola, Florida.

670. **Scorpæna mystes** Jordan and Starks........................ 1849
Drawing by Anna L. Brown from the type, No. 2919, L. S. Jr. Univ. Mus., collected by the Hopkins Expedition at Mazatlan, Mexico.

PLATE CCLXXVIII.

671. **Scorpæna grandicornis** Cuvier and Valenciennes........... 1850
Drawing by H. L. Todd from No. 35101, U.S.N.M., collected by Dr. Jordan at Key West, Florida.

672. **Pontinus macrolepis** Goode and Bean 1855
Drawing by A. H. Baldwin from a specimen collected by the *Blake* off Barbados.

PLATE CCLXXIX.

673. **Setarches parmatus** Goode 1860
Drawing by H. L. Todd from a specimen collected by the *Albatross* at Station 2397.

Text page.

674. **Anoplopoma fimbria** (Pallas) 1862
Drawing by H. L. Todd.

675. **Pleurogrammus monopterygius** (Pallas) 1864
Drawing by A. H. Baldwin from a specimen collected by Dr. Evermann at Atka Island, Alaska.

PLATE CCLXXX.

676. **Hexagrammos decagrammus** (Pallas) 1867
Drawing by W. S. Haines from No. 27710, U.S.N.M., collected at Old Sitka by L. A. Beardslee.

676*a*. **Skeleton of Hexagrammos decagrammus** 1867
A mail-cheeked fish from northern waters, showing vertebræ increased in number and diminished in size. Drawing by W. S. Atkinson from a specimen in L. S. Jr. Univ. Mus.

677. **Hexagrammos octogrammus** (Pallas) 1869
Drawing by W. S. Haines from No. 27975, U.S.N.M., collected at Unalaska by Dall and Bean.

PLATE CCLXXXI.

678. **Hexagrammos stelleri** Tilesius 1871
Drawing by H. L. Todd from No. 21530, U.S.N.M., collected at St. Michaels, Alaska, by L. M. Turner.

679. **Hexagrammos superciliosus** (Pallas) 1872
Drawing by M. M. Smith from No. 27934, U.S.N.M., collected at Chernoffsky, Unalaska Island, by T. H. Bean.

680. **Hexagrammos otakii** Jordan and Starks 1867
Drawing by Anna L. Brown from the type, No. 3704, L. S. Jr. Univ. Mus., collected by Keinosuke Otaki at Tokio, Japan.

PLATE CCLXXXII.

681. **Ophidion elongatus** Girard 1875
Drawing by H. L. Todd from No. 27657, U.S.N.M., collected by Dr. Bean at Sitka, Alaska.

682. **Oxylebius pictus** Gill 1878
Drawing by Anna L. Brown from No. 2381, L. S. Jr. Univ. Mus., collected by the California Fish Commission at San Francisco, California.

683. **Jordania zonope** Starks 1884
Drawing by Anna L. Brown from the type, No. 3124, L. S. Jr. Univ. Mus., collected by Miss Maude Parker and Adam Hubbert at Point Orchard, Puget Sound, Washington.

PLATE CCLXXXIII.

684. **Alcidea thoburni** (Gilbert) 1887
Drawing by A. H. Baldwin from a specimen collected by the *Albatross* at Station 3350.

685. **Skull of Scorpænichthys marmoratus** (Ayres) 1889

Text page.

686. **Chitonotus pugetensis** (Steindachner) 1890
Drawing by A. H. Baldwin from No. 27238, U.S.N.M., collected by Dr. Jordan in the Straits of Juan de Fuca, Washington.

PLATE CCLXXXIV.

687. **Icelinus borealis** Gilbert 1896
Drawing by A. H. Baldwin from the type collected by the *Albatross* at Station 3223.

688. **Astrolytes notospilotus** (Girard) 1899
Drawing by A. H. Baldwin from No. 27146, U.S.N.M., collected by Dr. Jordan in Puget Sound.

688*a*. **Astrolytes notospilotus** (Girard) 1899
Drawing from No. 23936, U.S.N.M., a young example, collected by W. H. Dall in the Shumagin Islands.

PLATE CCLXXXV.

689. **Artediellus atlanticus** Jordan and Evermann 1906
Drawing by H. L. Todd from the type, No. 21069, U.S.N.M., collected in Massachusetts Bay in 90 fathoms.

690. **Ruscarius meanyi** Jordan and Starks 1908
Drawing by Anna L. Brown from the type, No. 3127, L. S. Jr. Univ. Mus., collected by E. C. Starks at Point Orchard, Puget Sound, Washington.

PLATE CCLXXXVI.

691. **Rastrinus scutiger** (Bean) 1909
Drawing by W. S. Atkinson from a specimen in L. S. Jr. Univ. Mus.

692. **Icelus spiniger** Gilbert 1914
Drawing by A. H. Baldwin from the type, collected by the *Albatross* at Station 3278.

693. **Icelus canaliculatus** Gilbert 1917
Drawing by A. H. Baldwin from the type, collected by the *Albatross* at Station 3329, off Unalaska.

PLATE CCLXXXVII.

694. **Radulinus boleoides** Gilbert 1919
Drawing by A. H. Baldwin from the type, No. 48795, U.S.N.M., collected by the *Albatross* at Station 3664, off Santa Catalina Island, California, in 59 fathoms.

695. **Radulinus asprellus** Gilbert 1920
Drawing by Anna L. Brown from No. 3781, L. S. Jr. Univ. Mus., collected by E. C. Starks in Puget Sound, near Seattle, Washington.

696. **Triglops pingeli** Reinhardt 1923
Drawing by H. L. Todd from a specimen taken in trawl 8 miles off Chebucto in 521 fathoms.

PLATE CCLXXXVIII.

Text page.

697. **Triglops beani** Gilbert 1924
Drawing by H. L. Todd from the type, collected by the *Albatross* at Station 3220.

698. **Triglops scepticus** Gilbert 1925
Drawing by A. H. Baldwin from the type, collected by the *Albatross* at Station 3339.

699. **Sternias xenostethus** (Gilbert) 1927
Drawing by A. H. Baldwin from the type, collected by the *Albatross* at Station 3220, north of Unalaska, in 34 fathoms.

699*a*. **Sternias xenostethus** (Gilbert) 1927
Drawing by A. H. Baldwin from the type, collected by the *Albatross* at Station 3220, north of Unalaska, in 34 fathoms.

PLATE CCLXXXIX.

700. **Prionistius macellus** Bean 1928
Drawing by H. L. Todd from the type, No. 31958, U.S.N.M., collected by Capt. H. E. Nichols in Carter Bay, British Columbia.

701. **Elanura forficata** Gilbert 1930
Drawing by Anna L. Brown from the type, collected by the *Albatross* at Station 3214, in the Aleutian Islands.

702. **Melletes papilio** Bean 1932
Drawing by H. L. Todd from the type, No. 23751, U.S.N.M., collected by H. W. Elliott at St. Paul Island, Pribilof Group, Bering Sea.

PLATE CCXC.

703. **Hemilepidotus jordani** Bean 1934
Drawing by H. L. Todd from the type, No. 27598, U.S.N.M., collected by Sylvanus Bailey at Unalaska.

704, 704*a*, 704*b*. **Hemilepidotus hemilepidotus** (Tilesius) 1935
Drawings by S. F. Denton from No. 27609, U.S.N.M., collected at Sitka by T. H. Bean.

PLATE CCXCI.

705. **Enophrys bison** (Girard) 1738
Drawing by H. L. Todd from a specimen collected by Dr. Jordan in Puget Sound.

706. **Ceratocottus diceraus** (Pallas) 1940
Drawing by W. S. Haines, from No. 32007, U.S.N.M., collected by Capt. H. E. Nichols in Tolstoi Bay, Alaska.

PLATE CCXCII.

707. **Cottus evermanni** Gilbert 1945
Drawing by Chloe Lesley Starks from the type, No. 48228, U.S.N.M., collected by Gilbert, Cramer, and Otaki in Lost River, near Lostine, Oregon.

Text page.

708. **Cottus punctulatus** (Gill) 1948
Drawing by S. F. Denton from a specimen collected in Yellowstone Park by Dr. Jordan.

PLATE CCXCIII.

709. **Cottus perplexus** Gilbert and Evermann 1955
Drawing by A. H. Baldwin from the type, No. 45387, U.S.N.M., collected by Drs. Gilbert and Jenkins in the Skookumchuck River, near Chehalis, Washington.

710. **Cottus klamathensis** Gilbert 1955
Drawing by Anna L. Brown from the type, No. 48226, U.S.N.M., collected by Gilbert, Cramer, and Otaki, in Upper Klamath Lake, Oregon.

711. **Cottus aleuticus** Gilbert 1957
Drawing from No. 26922, U.S.N.M., the type of *Uranidea microstoma* Lockington, collected by W. J. Fischer at St. Paul, Kadiak Island, Alaska.

PLATE CCXCIV.

712. **Cottus leiopomus** Gilbert and Evermann 1962
Drawing by A. H. Baldwin from the type, No. 45389, U.S.N.M., collected by H. H. Kinsey in Little Wood River, near Shoshone, Idaho.

713. **Cottus princeps** Gilbert.. 1962
Drawing by Anna L. Brown from the type, No. 48227, U.S.N.M., collected by Gilbert, Cramer, and Otaki in Upper Klamath Lake, Oregon.

714. **Uranidea tenuis** Evermann and Meek.......................... 1966
Drawing by A. H. Baldwin from the type, No. 48229, U.S.N.M., collected by Meek and Alexander in Upper Klamath Lake, Oregon.

PLATE CCXCV.

715, 715*a*. **Myoxocephalus æneus** (Mitchill) 1972
Drawings by H. L. Todd from No. 15093, U.S.N.M., collected by Mr. Copley at Tompkinsville, New York.

716. **Myoxocephalus scorpius** (Linnæus)........................... 1974
Drawing by H. L. Todd from No. 21989, U.S.N.M., collected by L. Kumlein in Cumberland Gulf.

PLATE CCXCVI.

717. **Myoxocephalus octodecimspinosus** (Mitchill) 1976
Drawing by H. L. Todd from No. 4552, U.S.N.M., collected by Professor Baird at Beesley Point, New Jersey.

718. **Myoxocephalus polyacanthocephalus** Pallas 1976
Drawing by H. L. Todd from No. 23499, U.S.N.M., collected by W. H. Dall at Unalaska, Alaska.

719. **Myoxocephalus jaok** (Cuvier and Valenciennes)............. 1977
Drawing by H. L. Todd from No. 21522, U.S.N.M., collected by L. M. Turner at St. Michaels, Alaska.

PLATE CCXCVII.

Text page.

720, 720*a*. **Myoxocephalus verrucosus** (Bean) 1979
Drawing by H. L. Todd from No. 27847, U.S.N.M., collected by Dall and Bean in Plover Bay, Alaska.

721. **Myoxocephalus axillaris** (Gill) 1980
Drawing by H. L. Todd from No. 32442, U.S.N.M., collected by U. S. Signal Service Point Barrow Expedition at Bering Straits, Alaska.

PLATE CCXCVIII.

722, 722*a*, 722*b*. **Myoxocephalus stelleri** Tilesius 1981
Drawings by H. L. Todd from No. 32442, U.S.N.M., collected by U. S. Signal Service at Bering Straits, Alaska.

723. **Myoxocephalus niger** (Bean) 1985
Drawing by H. L. Todd from the type, No. 27971, U.S.N.M., collected by Dr. Bean at St. Paul Island, Bering Sea.

PLATE CCXCIX.

724, 724*a*. **Megalocottus platycephalus** (Pallas) 1987
Drawings by A. H. Baldwin from No. 21522, U.S.N.M., collected at St. Michaels, Alaska, by L. M. Turner.

725, 725*a*. **Megalocottus laticeps** (Gilbert) 1988
Drawings by A. H. Baldwin from the type, collected by the *Albatross* in the Nushagak River, Alaska.

PLATE CCC.

726. **Zesticelus profundorum** (Gilbert) 1990
Drawing by A. H. Baldwin from the type, collected by the *Albatross* at Station 3329 in Bering Sea, north of Unalaska.

727. **Dasycottus setiger** Bean 1991
Drawing by Anna L. Brown from No. 3761, L. S. Jr. Univ. Mus., collected by E. C. Starks in Puget Sound, near Seattle, Washington.

728. **Oncocottus quadricornis** (Linnæus) 2001
Drawing by W. S. Haines from No. 32962, U.S.N.M., collected by E. W. Nelson at St. Michaels, Alaska.

PLATE CCCI.

729, 729*a*, 729*b*. **Gymnocanthus pistilliger** (Pallas) 2006
Drawings by H. L. Todd from No. 21743, U.S.N.M., collected at Niantilik Harbor, Cumberland Gulf, by Ludwig Kumlien.

730. **Gymnocanthus galeatus** Bean 2010
Drawing by W. S. Haines from the type, No. 28097, U.S.N.M., collected by Dr. Bean at Unalaska, Alaska.

PLATE CCCII.

Text page.

731. **Leiocottus hirundo** Girard 2011
Drawing by A. H. Baldwin from No. 313, U.S.N.M., collected by W. P. Trowbridge at San Miguel, California.

732. **Leptocottus armatus** Girard 2012
Drawing by H. L. Todd from No. 27968, U.S.N.M., collected at Sitka, Alaska, by Dr. Bean.

733. **Oligocottus maculosus** Girard 2013
Drawing by H. L. Todd from No. 27514, U.S.N.M., collected by Dr. Bean at Sitka, Alaska.

PLATE CCCIII.

734. **Blennicottus embryum** (Jordan and Starks)............. 2016; 2864
Drawing by Anna L. Brown from the type, No. 3128, L. S. Jr. Univ. Mus., collected by E. C. Starks, Neah Bay, Washington.

735. **Histiocottus bilobus** (Cuvier and Valenciennes) 2018
Drawing by W. S. Haines from No. 30307, U.S.N.M., collected by W. J. Fischer at St. Paul, Kadiak Island, Alaska.

PLATE CCCIV.

736. **Blepsias cirrhosus** (Pallas).................................. 2018
Drawing by A. H. Baldwin from No. 27118, U.S.N.M., collected by Dr. Jordan in the Straits of Fuca.

736*a*, 736*b*. **Blepsias cirrhosus** (Pallas) 2018
Drawings by H. L. Todd from No. 30307, U.S.N.M., collected by W. J. Fischer at St. Paul, Kadiak Island, Alaska.

PLATE CCCV.

738. **Hemitripterus americanus** (Gmelin) 2023
Drawing by H. L. Todd from No. 23199, U.S.N.M., collected by the U. S. Fish Commission at Halifax, Nova Scotia, in 16 fathoms.

739. **Ascelichthys rhodorus** Jordan and Gilbert................... 2025
Drawing by A. H. Baldwin from No. 28488, U.S.N.M., collected by J. G. Swan at Neah Bay, Washington.

PLATE CCCVI.

740. **Psychrolutes paradoxus** Günther.......................... 2026
Drawing by Anna L. Brown from No. 3371, L. S. Jr. Univ. Mus., collected by E. C. Starks in Puget Sound near Point Orchard, Washington.

741. **Gilbertidia sigolutes** (Jordan and Starks) 2028
Drawing by Anna L. Brown from the type, No. 3129, L. S. Jr. Univ. Mus., collected by E. C. Starks in Puget Sound near Point Orchard, Washington.

PLATE CCCVII.

Text page.

742, 742*a*. **Rhamphocottus richardsoni** Günther 2030
Drawings by H. L. Todd from a specimen collected by W. N. Lockington, in California.

742*b*, 742*c*. **Rhamphocottus richardsoni** Günther 2030
Drawings by Anna L. Brown from No. 3385, L. S. Jr. Univ. Mus., collected by E. C. Starks in Puget Sound near Point Orchard, Washington.

PLATE CCCVIII.

743. **Occa dodecaedron** (Tilesius)................................. 2044
Drawing by Anna L. Brown from No. 14936, U.S.N.M., collected by Gordon Prince in Kamchatka.

744. **Pallasina barbata** (Steindachner)........................... 2049
Drawing by H. L. Todd from No. 28052, U.S.N.M., collected at Port Mulgrave, Alaska, by Dr. Bean.

745, 745*a*. **Podothecus accipiter** Jordan and Starks 2055
Drawing by Anna L. Brown from the type, No. 3835, L. S. Jr. Univ. Mus., collected by Capt. J. C. Blair at Robben Island.

PLATE CCCIX.

746. **Podothecus acipenserinus** (Tilesius)........................ 2061
Drawing by M. M. Smith from No. 32481, U.S.N.M., collected by W. J. Fischer at Kadiak Island, Alaska.

747, 747*a*. **Podothecus veternus** Jordan and Starks 2063
Drawing by Anna L. Brown from the type, No. 4823, L. S. Jr. Univ. Mus., collected by Capt. J. C. Blair at Robben Island.

748, 748*a*. **Stelgis vulsus** (Jordan and Gilbert) 2067
Drawing by Anna L. Brown from the type in the U.S.N.M., collected by Jordan and Gilbert at Point Reyes, California.

749, 749*a*. **Averruncus emmelane** Jordan and Starks............. 2069
Drawing by Anna L. Brown from the type, No. 3135, L. S. Jr. Univ. Mus., collected by E. C. Starks in Puget Sound near Point Orchard, Washington.

PLATE CCCX.

750, 750*a*. **Averruncus sterletus** Gilbert 2071
Drawings by Anna L. Brown from the type in the U.S.N.M., collected by the *Albatross* at Station 3662, off Avalon, Coronado Island, California, in 47 fathoms.

751. **Sarritor frenatus** (Gilbert) 2073
Drawing by A. H. Baldwin from the type collected by the *Albatross* at Station 3229.

Text page.

752, 752*a*. **Xystes axinophrys** Jordan and Starks 2076
Drawings by Anna L. Brown from the type, No. 3130, L. S. Jr. Univ. Mus., collected by E. C. Starks in Puget Sound near Seattle, Washington.

PLATE CCCXI.

753. **Bathygonus nigripinnis** Gilbert 2078
Drawing by A. H. Baldwin from No. 46614, U.S.N.M., collected by the *Albatross* in the Aleutian Islands.

754, 754*a*. **Xenochirus triacanthus** Gilbert 2084
Drawings by Anna L. Brown from No. 3760, L. S. Jr. Univ. Mus., collected by E. C. Starks in Puget Sound near Seattle, Washington.

PLATE CCCXII.

755, 755*a*, 755*b*. **Aspidophoroides guntheri** Bean 2090
Drawings by W. S. Haines from No. 37032, U.S.N.M., collected by G. M. Stoney in Alaska.

756, 756*a*. **Aspidophoroides monopterygius** (Bloch) 2091
Drawings by H. L. Todd from No. 21761, U.S.N.M., collected by the U. S. Fish Commission at Sandwich Point, Halifax, Nova Scotia, in 18 fathoms.

PLATE CCCXIII.

757. **Cyclopterus lumpus** Linnæus 2096
Drawing by H. L. Todd from No. 14795, U.S.N.M., collected by the U. S. Fish Commission at Eastport, Maine.

758. **Lethotremus muticus** Gilbert 2101
Drawing by A. H. Baldwin from the type, collected by the *Albatross* at Station 3223, in Unimak Pass, Alaska.

PLATE CCCXIV.

759. **Lethotremus vinolentus** Jordan and Starks 2101
Drawing by Anna L. Brown from the type, No. 3131, L. S. Jr. Univ. Mus., collected by E. C. Starks in Puget Sound, near Seattle, Washington.

760, 760*a*. **Neoliparis callyodon** (Pallas) 2110
Drawings by M. M. Smith from No. 30317, U.S.N.M., collected by W. J. Fischer at St. Paul, Kadiak Island, Alaska.

PLATE CCCXV.

761, 761*a*. **Neoliparis mucosus** (Ayres) 2111
Drawings by Anna L. Brown from No. 360, Cal. Acad. Sci., collected by H. D. Dunn off San Francisco, California.

Text page.

762. **Neoliparis floræ** Jordan and Starks........................ 2111
Drawing by Anna L. Brown from the type, No. 3126, L. S. Jr. Univ. Mus., collected by E. C. Starks at Waadda Island, Neah Bay, Washington.

PLATE CCCXVI.

763, 763*a*. **Neoliparis greeni** Jordan and Starks................... 2112
Drawings by Anna L. Brown from the type, No. 3019, L. S. Jr. Univ. Mus., collected by A. N. Green in Victoria Harbor, Victoria, British Columbia.

764, 764*a*. **Liparis cyclopus** Günther 2118
Drawings by H. L. Todd from No. 24007, U.S.N.M., collected at Port Muller, Alaska, by W. H. Dall.

PLATE CCCXVII.

765. **Liparis agassizii** Putnam 2121
Drawing by H. L. Todd from one of the types of *L. gibbus* Bean, No. 24047, U.S.N.M., collected at St. Paul Island, Bering Sea, by H. W. Elliott.

766, 766*a*. **Liparis dennyi** Jordan and Starks........................ 2124
Drawings by Anna L. Brown from the type, No. 3703, L. S. Jr. Univ. Mus., collected by E. C. Starks in Admiralty Inlet, near Seattle, Washington.

PLATE CCCXVIII.

767. **Bathyphasma ovigerum** Gilbert.............................. 2128
Drawing by A. H. Baldwin from the type, No. 48622, U.S.N.M., collected by the *Albatross* at Station 3342, off Queen Charlotte Island, in 1,588 fathoms.

768. **Prionotus carolinus** (Linnæus)................................ 2156
Drawing by H. L. Todd from No. 774, U.S.N.M., collected by Professor Baird at Beesleys Point, New Jersey.

PLATE CCCXIX.

769. **Prionotus scitulus** Jordan 2157
Drawing by H. L. Todd from a specimen collected by G. Würdemann in Florida.

770. **Prionotus alatus** Goode and Bean 2159
Drawing from the type, collected in deep water off Charleston, South Carolina.

PLATE CCCXX.

771. **Prionotus stearnsi** Jordan and Swain 2166
Drawing from a specimen obtained on the Pensacola Snapper Banks.

772. **Prionotus evolans** (Linnæus)................................. 2168
Drawing by H. L. Todd from No. 5556, U.S.N.M., collected by Professor Baird at Woods Hole, Massachusetts.

PLATE CCCXXI.

Text page.

773. **Bellator egretta** (Goode and Bean) 2174
Drawing by M. M. Smith from the type in the M. C. Z., collected by the *Blake* at Station LXIV, off Barbados.

774. **Peristedion miniatum** Goode 2178
Drawing by H. L. Todd from the type, No. 26023, U.S.N.M., collected by the *Fish Hawk* at Station 869, in N. lat. 40° 02′ 18″, W. long. 70° 23′ 06″, in 192 fathoms.

775. **Peristedion longispathum** Goode and Bean 2178
Drawing by H. L. Todd from the type, collected by the *Blake* at Station LVIII, off Havaña, in 242 fathoms.

PLATE CCCXXII.

776. **Peristedion gracile** Goode and Bean 2179
Drawing by H. L. Todd from the type, collected by the *Albatross* at Station 2401, in N. lat. 28° 38′ 30″, W. long. 85° 52′ 30″, in 142 fathoms.

777, 777*a*. **Peristedion platycephalum** Goode and Bean 2180
Drawings by H. L. Todd from the type, collected by the *Blake* at Station LX, off Barbados, in 123 fathoms.

PLATE CCCXXIII.

778. **Cephalacanthus volitans** (Linnæus) 2183
Drawing by W. S. Haines.

779. **Callionymus agassizii** Goode and Bean 2186
Drawing by H. L. Todd from a specimen collected by the *Blake* at Station XXX, off Barbados, in 209 fathoms.

780. **Ioglossus calliurus** Bean 2193
Drawing from No. 30797, U.S.N.M., collected by Silas Stearns at the Pensacola Snapper Banks.

PLATE CCCXXIV.

781. **Philypnus dormitor** (Lacépède) 2194
Drawing by A. H. Baldwin from a specimen collected by Dr. Evermann at Palo Seco, Puerto Rico.

782. **Dormitator maculatus** (Bloch) 2196
Drawing by A. H. Baldwin from a specimen collected by Dr. Evermann at Hucares, Puerto Rico.

PLATE CCCXXV.

783. **Eleotris pisonis** (Gmelin) 2200
Drawing by A. H. Baldwin from No. 5757, U.S.N.M., collected by Dr. Whitehurst at Garden Key, Florida.

784. **Alexurus armiger** Jordan and Richardson 2203
Drawing by Anna L. Brown from the type, No. 3455, L. S. Jr. Univ. Mus., collected by J. A. Richardson in La Paz Harbor, Lower California.

785. **Erotelis smaragdus** (Cuvier and Valenciennes) 2204
Drawing by A. H. Baldwin.

PLATE CCCXXVI.

Text page.

786. **Lophogobius cyprinoides** (Pallas) 2209
Drawing by A. H. Baldwin from No. 37509, U.S.N.M., collected by Professor Poey in Cuba.

787. **Gobius stigmaticus** (Poey) 2224
Drawing by W. S. Haines from No. 30469, U.S.N.M., collected by Silas Stearns in south Florida.

788. **Gobius hastatus** Girard 2229
Drawing by H. L. Todd from No. 35155, U.S.N.M., collected by Dr. Jordan at Key West, Florida.

PLATE CCCXXVII.

789. **Gobius oceanicus** Pallas 2230
Drawing by A. H. Baldwin from No. 35155, U.S.N.M., collected by Dr. Jordan at Key West, Florida.

789*a*. **Gobius oceanicus** Pallas 2230
Drawing by A. H. Baldwin from a specimen collected by Dr. Evermann at Palo Seco, Puerto Rico.

790. **Garmannia paradoxa** (Günther) 2232
Drawing by Anna L. Brown from No. 3765, L. S. Jr. Univ. Mus., collected by the Hopkins Expedition at Mazatlan, Mexico.

PLATE CCCXXVIII.

791. **Bollmannia chlamydes** Jordan 2238
Drawing by W. S. Atkinson from a specimen in L. S. Jr. Univ. Mus., collected by the *Albatross* off the coast of Colombia.

792. **Aboma etheostoma** Jordan and Starks 2240
Drawing by Anna L. Brown from the type, No. 3459, L. S. Jr. Univ. Mus., collected by the Hopkins Expedition in the Astillero at Mazatlan, Mexico.

793. **Clevelandia ios** (Jordan and Gilbert) 2254
Drawing by Anna L. Brown from No. 3666, L. S. Jr. Univ. Mus., collected by E. C. Starks in Elliot Bay, near Seattle, Washington.

PLATE CCCXXIX.

794. **Evermannia zosterura** (Jordan and Gilbert) 2256
Drawing by Anna L. Brown from No. 2927, L. S. Jr. Univ. Mus., collected by the Hopkins Expedition at Mazatlan, Mexico.

795. **Typhlogobius californiensis** Steindachner 2262
Drawing by A. H. Baldwin from No. 34747, U.S.N.M., collected by Rosa Smith at San Diego, California.

796. **Echeneis naucrates** Linnæus 2269
Drawing by H. L. Todd.

PLATE CCCXXX.

Text page.

797, 797*a*. **Remora brachyptera** (Lowe) 2272
Drawing by H. L. Todd from No. 23374, U.S.N.M., collected by Daniel McEachran in N. lat. 42° 40′, W. long. 63° 6′, in 250 fathoms.

798. **Rhombochirus osteochir** (Cuvier) 2273
Drawing by H. L. Todd from No. 19022, U.S.N.M., collected by the U. S. Fish Commission at Woods Hole, Massachusetts.

799. **Caulolatilus microps** Goode and Bean 2277
Drawing by H. L. Todd from No. 20971, U.S.N.M., collected by Silas Stearns at the Pensacola Snapper Banks.

PLATE CCCXXXI.

800. **Opisthognathus macrognathum** Poey 2281
Drawing by H. L. Todd from No. 5936, U.S.N.M., the type of *O. scaphiurus* Goode and Bean, collected by Dr. Whitehurst at Garden Key, Florida.

800*a*. **Opisthognathus macrognathum** Poey 2281
Drawing by A. H. Baldwin from No. 5936, U.S.N.M., the type of *O. scaphiurus* Goode and Bean, collected by Dr. Whitehurst at Garden Key, Florida.

801. **Gnathypops maxillosa** Poey 2284
Drawing by H. L. Todd from No. 5866, U.S.N.M., collected at Garden Key, Florida.

PLATE CCCXXXII.

802. **Bathymaster signatus** Cope 2288
Drawing by H. L. Todd from No. 27646, U.S.N.M., collected by Capt. E. P. Herendeen at the Shumagin Islands, Alaska.

803. **Ronquilus jordani** (Gilbert) 2289
Drawing by Anna L. Brown from No. 3410, L. S. Jr. Univ. Mus., collected by the Young Naturalist Society of Seattle in Elliot Bay, near Seattle, Washington.

804. **Chiasmodon niger** Johnson 2291
Drawing by H. L. Todd from No. 25633, U.S.N.M., collected by Capt. Thomas F. Hodgdon at the surface on Le Have Bank.

PLATE CCCXXXIII.

805. **Hypsicometes gobioides** Goode 2294
Drawing by A. H. Baldwin from a specimen collected by the *Albatross* at Station 2377.

806. **Trichodon trichodon** (Tilesius) 2295
Drawing by M. M. Smith from No. 27980, U.S.N.M., collected by Marcus Baker at the Shumagin Islands.

807. **Arctoscopus japonicus** (Steindachner) 2297
Drawing by W. S. Atkinson from No. 5656, L. S. Jr. Univ. Mus., collected by the *Albatross* at Station 3652.

PLATE CCCXXXIV.

		Text page.
808.	**Astroscopus y-græcum** (Cuvier and Valenciennes) .... Drawing by M. M. Smith from No. 18029, U.S.N.M., collected by J. C. Willets at Matanzas River Inlet, Florida.	2307
809, 809*a*.	**Kathetostoma albigutta** Bean .... Drawings by M. M. Smith from No. 2403, U.S.N.M., collected by the *Albatross*.	2312

PLATE CCCXXXV.

810.	**Opsanus pardus** (Goode and Bean) .... Drawing by H. L. Todd from the type, No. 22237, U.S.N.M., collected by Silas Stearns at the Pensacola Snapper Banks, Florida.	2316
811.	**Porichthys porosissimus** (Cuvier and Valenciennes)......... Drawing by A. H. Baldwin from a specimen collected by the *Albatross* at Station 2121.	2319
812.	**Caularchus mæandricus** (Girard) .... Drawing by H. L. Todd.	2328
813.	**Rimicola muscarum** (Meek and Pierson)..................... Drawing by A. H. Baldwin from the type in L. S. Jr. Univ. Mus., collected by Meek and Pierson in Monterey Bay, California.	2338

PLATE CCCXXXVI.

814.	**Enneanectes carminalis** (Jordan and Gilbert) .... Drawing by Anna L. Brown from No. 3854, L. S. Jr. Univ. Mus., collected by the Hopkins Expedition at Mazatlan, Mexico.	2350
815.	**Gibbonsia elegans evides** (Jordan and Gilbert)............... Drawing by A. H. Baldwin from No. 34784, U.S.N.M., collected by Rosa Smith at San Diego, California.	2352
816.	**Neoclinus satiricus** Girard .... Drawing by W. S. Atkinson from No. 2288, L. S. Jr. Univ. Mus., collected by Dr. Gilbert at Pacific Grove, California.	2355

PLATE CCCXXXVII.

817.	**Cryptotrema corallinum** Gilbert .... Drawing by W. S. Atkinson from a specimen in L. S. Jr. Univ. Mus.	2266
818.	**Exerpes asper** (Jenkins and Evermann) .... Drawing by A. H. Baldwin from the type, No. 39643, U.S.N.M., collected by Jenkins and Evermann at Guaymas, Mexico.	2367
819.	**Auchenopterus nox** (Jordan and Gilbert) .... Drawing by Anna L. Brown from the type collected by Dr. Jordan at Key West, Florida.	2373

PLATE CCCXXXVIII.

Text page.

820. **Blennius favosus** Goode and Bean 2380
Drawing from the type, No. 2629, U.S.N.M., collected by G. Würdemann at Garden Key, Florida.

821. **Blennius cristatus** Linnæus 2382

822. **Hypsoblennius ionthas** (Jordan and Gilbert)............... 2388

PLATE CCCXXXIX.

823. **Hypsoblennius hentz** (Le Sueur)........................... 2390
Drawing by M. M. Smith from No. 26308, U.S.N.M., collected at Charleston, South Carolina, by C. C. Leslie.

824. **Chasmodes saburræ** Jordan and Gilbert...................... 2392
Drawing by H. L. Todd from the type, No. 30824, U.S.N.M., collected by Jordan and Stearns at Pensacola, Florida.

825. **Rupiscartes atlanticus** (Cuvier and Valenciennes)........... 2397
Drawing by A. H. Baldwin from No. 36946, U.S.N.M., collected by C. H. Townsend at San Cristobal, Lower California.

PLATE CCCXL.

826. **Emblemaria atlantica** Jordan and Evermann 2402
Drawing by A. H. Baldwin from the type, No. 33915, U.S.N.M., collected by Silas Stearns at the Pensacola Snapper Banks, Florida.

827. **Stathmonotus hemphillii** Bean.............................. 2407
Drawing by H. L. Todd from the type, No. 37193, U.S.N.M., collected by Henry Hemphill at Key West, Florida.

PLATE CCCXLI.

828. **Bryostema polyactocephalum** (Pallas)....................... 2408
Drawing by H. L. Todd from No. 36889, U.S.N.M., collected by J. G. Swan in Puget Sound, Washington.

829. **Bryostema nugator** Jordan and Williams...................... 2410
Drawing by Anna L. Brown from the type, No. 3134, L. S. Jr. Univ. Mus., collected by the Young Nat. Soc. of Seattle in Elliot Bay, near Seattle, Washington.

830. **Apodichthys flavidus** Girard................................ 2411
Drawing by W. S. Haines from No. 36965, U.S.N.M., collected by J. G. Swan at Port Townsend, Washington.

PLATE CCCXLII.

831. **Pholis dolichogaster** (Pallas) 2416
Drawing by H. L. Todd from No. 33834, U.S.N.M., collected by Dr. L. Stejneger at Bering Island.

832. **Pholis gunnellus** (Linnæus) 2419
Drawing by H. L. Todd from No. 23198, U.S.N.M, collected by R. E. Earll at Gloucester, Massachusetts.

Text page.

833. **Pholis ornatus** (Girard) 2419
Drawing by M. M. Smith from No. 27996, U.S.N.M., collected by Dr. Bean at Sitka, Alaska.

PLATE CCCXLIII.

834. **Asternopteryx gunnelliformis** Rüppell 2420
Drawing by A. H. Baldwin from No. 48453, U.S.N.M., collected by Schuchert and White in Omanak Fjord, Karsak, Noursook Peninsula, Greenland.

835. **Anoplarchus atropurpureus** (Kittlitz) 2422
Drawing by H. L. Todd from No. 29820, U.S.N.M., collected by L. M. Turner at Atka Island, Alaska.

836. **Xiphistes ulvæ** Jordan and Starks.............................. 2423
Drawing by Anna L. Brown from the type, No. 3132 L. S. Jr. Univ. Mus., collected by E. C. Starks at Waadda Island, Neah Bay, Washington.

PLATE CCCXLIV.

837. **Xiphistes chirus** (Jordan and Gilbert)......................... 2424
Drawing by H. L. Todd from No. 23964, U.S.N.M, collected by W. H. Dall at Amchitka Island, Alaska.

838. **Xiphidion rupestre** (Jordan and Gilbert)..................... 2426
Drawing by H. L. Todd from a specimen collected by Sylvanus Bailey at Sitka, Alaska.

839. **Lumpenus mackayi** Gilbert..................................... 2436
Drawing by A. H. Baldwin from the type collected in the Nushagak River, Alaska, by the *Albatross.*

840. **Lumpenus lampetræformis** (Walbaum) 2438
Drawing by H. L. Todd from No. 13852. U.S.N.M.

PLATE CCCXLV.

841. **Stichæus punctatus** (Fabricius) 2439
Drawing by H. L. Todd from No. 21718, U.S.N.M., collected by L. M. Turner at St. Michaels, Alaska.

842. **Ulvaria subbifurcata** (Storer) 2440
Drawing by H. L. Todd from a specimen from the Academy of Natural Sciences of Montreal.

843. **Cryptacanthodes maculatus** Storer 2443
Drawing by H. L. Todd from No. 22309, U.S.N.M, obtained from E. G. Blackford.

PLATE CCCXLVI.

844. **Lyconectes aleutensis** Gilbert.................................. 2444
Drawing by A. H. Baldwin from the type, collected by the *Albatross* at Station 3312, north of Unalaska, in 45 fathoms.

845. **Anarhichas latifrons** Steenstrup and Hallgrimsson............ 2446
Drawing by H. L. Todd from No. 21373, U.S.N.M., collected by Capt. J. W. Collins in N. lat. 43° 56′, W. long. 59° 04′.

PLATE CCCXLVII.

Text page.

846. **Anarhichas lupus** Linnæus 2446
Drawing by H. L. Todd from No. 21846, U.S.N.M., collected by Capt. John Gourville at Georges Bank.

847. **Anarhichas lepturus** Bean 2447
Drawing from the type, collected by L. M. Turner at St. Michaels, Alaska.

848. **Ptilichthys goodei** Bean 2452
Drawing by H. L. Todd from the type, No. 26619, U.S.N.M., collected at Iliuliuk (Unalaska), Alaska.

PLATE CCCXLVIII.

849, 849*a*, 849*b*. **Scytalina cerdale** Jordan and Gilbert 2454
Drawings by Anna L. Brown from No. 3389, L. S. Jr. Univ. Mus., collected by E. C. Starks at Waadda Island, Neah Bay, Washington.

850. **Zoarces anguillaris** (Peck) 2457
Drawing by H. L. Todd from No. 10438, U.S.N.M., collected by the U. S. Fish Commission at Eastport, Maine.

851. **Embryx crotalinus** (Gilbert) 2458
Drawing by A. H. Baldwin from the type, collected by the *Albatross* at Station 2980, off Santa Barbara Islands.

PLATE CCCXLIX.

852. **Aprodon cortezianus** Gilbert 2461
Drawing by A. H. Baldwin from the type, No. 46457, U.S.N.M., collected by the *Albatross* on Cortez Banks, off San Diego, California.

853. **Lycodes zoarchus** Goode and Bean 2464
Drawing by H. L. Todd from the type, No. 39298, U.S.N.M., collected by the *Albatross* in N. lat. 44° 46′ 30″, W. long. 59° 55′ 45″, off Nova Scotia, in 130 fathoms.

854. **Lycodes reticulatus** Reinhardt 2465
Drawing by H. L. Todd from a specimen collected by Capt. R. Markuson at S. W. Banquereau, in 300 fathoms.

PLATE CCCL.

855. **Lycodes perspicillum** Kröyer 2465
Drawing by H. L. Todd from No. 39336, U.S.N.M., collected by the *Albatross* at Station 2456, in N. lat. 47° 29′, W. long. 52° 18′, in 86 fathoms.

856. **Lycodes frigidus** Collett 2465
Drawing by H. L. Todd from No. 32995, U.S.N.M., collected by the *Albatross* at Station 2018, in N. lat. 37° 12′ 22″, W. long. 74° 20′ 04″, in 788 fathoms.

Text page.

857. **Lycodalepis polaris** (Sabine) 2468
Drawing by H. L. Todd from No. 27748, U.S.N.M., the type of *Lycodes coccineus* Bean, collected by Dr. Bean at Big Diomede Island, Bering Strait.

858. **Lycodalepis turneri** (Bean) 2469
Drawing by H. L. Todd from the type, No. 21529, U.S.N.M., collected by L. M. Turner at St. Michaels, Alaska.

PLATE CCCLI.

859. **Lycenchelys verrillii** (Goode and Bean) 2470
Drawing by H. L. Todd from No. 21015, U.S.N.M., an old male, collected by the U. S. Fish Commission, 27 miles southwest of Chebucto, Nova Scotia.

860, 860*a*, 860*b*, 860*c*, 860*d*. **Lycenchelys paxillus** (Goode and Bean). 2471
Drawings by H. L. Todd from the type, No. 22177, U.S.N.M., collected by Capt. J. W. Collins in N. lat. 42° 48′, W. long. 63° 07′.

861. **Furcimanus diapterus** (Gilbert) 2472
Drawing by W. S. Atkinson from a specimen in L. S. Jr. Univ. Mus.

PLATE CCCLII.

862. **Lycodonus mirabilis** (Goode and Bean) 2474
Drawing by S. F. Denton from No. 39207, U.S.N.M., collected by the *Albatross* at Station 2742, in N. lat. 37° 46′ 30″, W. long. 73° 56′ 30″.

863. **Lyconema barbatum** Gilbert 2474
Drawing by A. H. Baldwin from the type, collected by the *Albatross* at Station 3129, in 204 fathoms.

864, 864*a*, 864*b*, 864*c*. **Gymnelis viridis** (Fabricius) 2479
Drawing by H. L. Todd from No. 21999a, U.S.N.M., collected at Niantilik Harbor, Cumberland Gulf, by W. A. Mintzer.

865. **Melanostigma pammelas** Gilbert 2479
Drawing by A. H. Baldwin from the type, collected by the *Albatross* at Station 3202, on coast of California.

PLATE CCCLIII.

866. **Lepophidium marmoratum** (Goode and Bean) 2482
Drawing by M. M. Hildebrant from the type, No. 37237, U.S.N.M., collected by the *Albatross* in N. lat. 23° 10′ 39″, W. long. 82° 20′ 21″, in 213 fathoms.

867. **Lepophidium profundorum** (Gill) 2484
Drawing by A. H. Baldwin from a specimen collected by the *Albatross* at Station 2042.

868. **Rissola marginata** (De Kay) 2489

PLATE CCCLIV.

Text page.

869. **Otophidium omostigmum** (Jordan and Gilbert)................ 2490
Drawing by H. L. Todd from the type, No. 29670, U.S.N.M., collected by Jordan and Stearns at the Pensacola Snapper Banks.

870. **Lycodapus dermatinus** Gilbert 2492
Drawing by A. H. Baldwin from the type, collected by the *Albatross* at Station 3162, off Lower California.

871. **Brotula barbata** (Bloch and Schneider) 2500
Drawing by A. H. Baldwin from No. 5337, U.S.N.M., collected by Professor Poey in Cuba.

PLATE CCCLV.

872. **Ogilbia ventralis** (Gill)...................................... 2503
Drawing by Anna L. Brown from No. 2903, L. S. Jr. Univ. Mus., collected by the Hopkins Expedition at Mazatlan, Mexico.

873. **Ogilbia cayorum** Evermann and Kendall.................... 2503
Drawing by A. H. Baldwin from the type, No. 48792, U.S.N.M., collected by Evermann and Kendall at Key West, Florida.

874. **Dicromita agassizii** Goode and Bean........................ 2506
Drawing by H. L. Todd from the type, collected by the *Blake* off Grenada.

PLATE CCCLVI.

875. **Bassozetus normalis** Gill.. 2507
Drawing by H. L. Todd from No. 39416, U.S.N.M., collected by the *Albatross* in N. lat. 28° 02′ 30″, W. long. 87° 43′ 45″.

876. **Bassozetus catena** Goode and Bean.......................... 2509
Drawn by A. H. Baldwin from the type, No. 37341, U.S.N.M., collected by the *Albatross* in N. lat. 28° 00′ 15″, W. long. 87° 42′, in 1,467 fathoms.

876*a*. **Bassozetus catena** Goode and Bean 2509
Drawn by H. L. Todd from same specimen.

PLATE CCCLVII.

877. **Neobythites gillii** Goode and Bean........................... 2512
Drawing by A. H. Baldwin from the type, No. 37340, U.S.N.M., collected by the *Albatross* in N. lat. 28° 36′, W. long. 85° 33′, in 111 fathoms.

878. **Neobythites marginatus** Goode and Bean.................... 2513
Drawing by H. L. Todd from the type collected by the *Blake* off Barbados, in 209 fathoms.

879. **Bassogigas gillii** Goode and Bean 2515
Drawing by A. H. Baldwin from the type, No. 39417, U.S.N.M., collected by the *Albatross* off Cape Henlopen, Delaware, in N. lat. 39° 35′, W. long. 70° 54′, in 1,106 fathoms.

880. **Barathrodemus manatinus** Goode and Bean 2517
Drawing by H. L. Todd from the type in M. C. Z., collected by the *Blake* in N. lat. 33° 35′ 20″, W. long. 76°, in 647 fathoms.

PLATE CCCLVIII.

Text page.

881. **Porogadus miles** Goode and Bean 2520
Drawing by A. H. Baldwin from the type, No. 35625, U.S.N.M., collected by the *Albatross* at Station 2230, in N. lat. 38° 27′, W. long. 73° 02′, in 1,168 fathoms.

882. **Dicrolene intronigra** Goode and Bean 2522
Drawing by H. L. Todd from a specimen collected by the *Blake* in the Gulf Stream.

883. **Barathronus bicolor** Goode and Bean 2524
Drawing by M. M. Smith from the type collected by the *Blake* at Station LXXI, off Guadeloupe, in 769 fathoms.

PLATE CCCLIX.

884. **Merluccius productus** (Ayres) 2531
Drawing by H. L. Todd from No. 26638, U.S.N.M., collected by W. F. Prosser at Seattle, Washington.

885. **Borogadus saida** (Lepechin) 2533
Drawing by H. L. Todd from No. 24031, U.S.N.M., collected by L. M. Turner at St. Michaels, Alaska.

886. **Pollachius virens** (Linnæus) 2534
Drawing by H. L. Todd from No. 10443, U.S.N.M., collected by Professor Baird at Eastport, Maine.

PLATE CCCLX.

887. **Theragra chalcogramma** (Pallas) 2535
Drawing by H. L. Todd from No. 27637, U.S.N.M., collected by W. H. Dall in Pirate Cove, Shumagin Island, Alaska.

888. **Eleginus navaga** (Kölreuter) 2537
Drawing by H. L. Todd from No. 9286, U.S.N.M., collected by H. Bannister at St. Michaels, Alaska.

889. **Microgadus proximus** (Girard) 2539
Drawing by H. L. Todd from No. 27982, U.S.N.M., collected at Yakutat Bay, Alaska, by Dr. T. H. Bean.

890. **Microgadus tomcod** (Walbaum) 2540
Drawing by H. L. Todd from No. 17733, U.S.N.M., collected by V. N. Edwards at Woods Hole, Massachusetts.

PLATE CCCLXI.

891. **Gadus callarias** Linnæus 2541
Drawing by H. L. Todd from No. 10444, U.S.N.M., collected by Professor Baird at Eastport, Maine.

892. **Melanogrammus æglefinus** Linnæus 2542
Drawing by H. L. Todd from No. 10440, U.S.N.M., collected by Professor Baird at Eastport, Maine.

892*a*. **Melanogrammus æglefinus** Linnæus 2542
Drawing of skull by H. L. Todd.

PLATE CCCLXII.

Text page.

893, 893*a*. **Antimora viola** (Goode and Bean) 2544
Drawings by H. L. Todd from the type, No. 21837, U.S.N.M., collected by Capt. J. W. Collins on Le Have Bank, in 400 to 500 fathoms.

894. **Uraleptus maraldi** (Risso) 2545
Drawing by H. L. Todd from a specimen collected by the *Blake* at Station LXXXI, off Neris.

PLATE CCCLXIII.

895. **Lotella maxillaris** Bean 2546
Drawing by H. L. Todd from the type, No. 29832, U.S.N.M., collected by the *Fish Hawk* in N. lat. 39° 55′, W. long. 70° 28′, in 396 fathoms.

896. **Physiculus fulvus** Bean 2547
Drawing by H. L. Todd from the type, No. 28466, U.S.N.M., collected by the *Fish Hawk* in N. lat. 40° 01′, W. long. 69° 56′, in 79 fathoms.

PLATE CCCLXIV.

897. **Lota maculosa** (Le Sueur) 2550
Drawing by H. L. Todd.

898. **Urophycis regius** (Walbaum) 2553
Drawing by H. L. Todd from No. 20923, U.S.N.M., obtained by E. G. Blackford from the New York Aquarium.

899. **Urophycis cirratus** (Goode and Bean) 2553
Drawing by H. L. Todd from the type, No. 39059, U.S.N.M., collected by the *Albatross* at Station 2376, in N. lat. 29° 03′ 15″, W. long. 88° 16′.

PLATE CCCLXV.

900. **Urophycis earlli** (Bean) 2554
Drawing by H. L. Todd from the type, No. 25207, U.S.N.M., collected by R. E. Earll at Charleston, South Carolina.

901. **Urophycis tenuis** (Mitchill) 2555
Drawing by H. L. Todd from No. 21029, U.S.N.M., collected by the *Speedwell* in Halifax Harbor.

902. **Urophycis chuss** (Walbaum) 2555
Drawing by H. L. Todd from No. 28707, U.S.N.M., collected by the *Fish Hawk* at Station 918, in N. lat. 40° 20′ 24″, W. long. 70° 41′ 30″, in 245 fathoms.

PLATE CCCLXVI.

903. **Urophycis chesteri** Goode and Bean 2556
Drawing by H. L. Todd from No. 21840, U.S.N.M., collected by the *Speedwell* at Station 174, off Cape Ann, in 140 fathoms.

Text page.

904. **Lemonema barbatulum** Goode and Bean 2556
Drawing by W. S. Haines from No. 38331, U.S.N.M., collected by the *Albatross* at Station 2397 in N. lat. 28° 42′, W. long. 86° 36′, in 280 fathoms.

905. **Lemonema melanurum** Goode and Bean 2557
Drawing by W. S. Haines from the type, No. 38270, U.S.N.M., collected by the *Albatross* at Station 2415 in N. lat. 30° 44′, W. long. 79° 26′, in 440 fathoms.

PLATE CCCLXVII.

906. **Gairdropsarus argentatus** (Rheinhardt) 2559
Drawing by H. L. Todd from No. 7212, U.S.N.M., collected at Nahant, Massachusetts, by F. W. Putnam.

907. **Euchelyopus cimbrius** (Linnæus) 2560
Drawing by H. L. Todd from No. 21721, U.S.N.M., collected by Edward Brown in Bay Chaleur.

908. **Bathygadus favosus** Goode and Bean 2565
Drawing by H. L. Todd from the type collected by the *Blake* off Martinique, in 472 fathoms.

PLATE CCCLXVIII.

909. **Steindachneria argentea** Goode and Bean 2568
Drawing by H. L. Todd from the type, No. 37350, U.S.N.M., collected by the *Albatross* in N. lat. 39° 14′ 30″, W. long. 88° 9′ 30″, in 68 fathoms.

910. **Chalinura simula** Goode and Bean 2578
Drawing by H. L. Todd from No. 39152, U.S.N.M., collected by the *Albatross* at Station 2095 in N. lat. 39° 29′, W. long. 70° 58′ 40″, in 1,342 fathoms.

911. **Coryphænoides carapinus** Goode and Bean 2579
Drawing by H. L. Todd from a specimen collected by the *Blake* in N. lat. 39° 43′, W. long. 70° 55′ 25″.

PLATE CCCLXIX.

912. **Hymenocephalus cavernosus** (Goode and Bean) 2580
Drawing by S. F. Denton from the type, No. 37337, U.S.N.M., collected by the *Albatross* at Station 2398 in N. lat. 28° 45′ W. long. 86° 26′, in 227 fathoms.

913. **Cœlorhynchus occa** (Goode and Bean) 2588
Drawing by H. L. Todd from the type No. 37334, U.S.N.M., collected by the *Albatross* at Station 2396 in N. lat. 28° 34′, W. long. 86° 48′, in 335 fathoms.

914. **Cœlorhynchus carminatus** (Goode) 2588
Drawing by H. L. Todd from No. 26187, U.S.N.M., collected by the *Fish Hawk* at Station 893, off Marthas Vineyard, in 372 fathoms.

PLATE CCCLXX.

Text page.

915. **Cœlorhynchus caribbæus** (Goode and Bean)................ 2589
Drawing by H. L. Todd from the type, No. 37333, U.S.N.M., collected by the *Albatross* at Station 2377, in the northern part of the Gulf of Mexico, in N. lat. 29° 7′ 30″, W. long. 88° 8′, in 210 fathoms.

916. **Regalecus glesne** (Ascanius)............................ 2596
Drawing from Day, Fishes of Great Britain and Ireland, pl. 64.

PLATE CCCLXXI.

917. **Atheresthes stomias** (Jordan and Gilbert).................. 2609
Drawing by A. H. Baldwin from No. 27186, U.S.N.M., collected by Dr. Jordan at Point Reyes, California.

918. **Hippoglossus hippoglossus** (Linnæus)..................... 2611
Drawing by H. L. Todd from No. 27605, U.S.N.M., collected at Marmot Island, Alaska, by Dr. Bean.

PLATE CCCLXXII.

919. **Hippoglossoides platessoides** (Fabricius) 2614
Drawing by H. L. Todd from No. 21002, U.S.N.M., collected at Le Have Bank.

920. **Hippoglossoides elassodon** Jordan and Gilbert.............. 2615

PLATE CCCLXXIII.

921. **Psettichthys melanostictus** Girard........................ 2618
Drawing by H. L. Todd from No. 24167, U.S.N.M., collected at San Francisco, California, by Dr. Jordan.

922. **Paralichthys dentatus** (Linnæus)......................... 2629
Drawing by A. H. Baldwin from a specimen collected by Dr. H. M. Smith at St. George Island, Maryland.

PLATE CCCLXXIV.

923. **Paralichthys squamilentus** Jordan and Gilbert............. 2631
Drawing by H. L. Todd from No. 30862, U.S.N.M., collected at Pensacola, Florida, by Jordan and Stearns.

924. **Paralichthys oblongus** (Mitchill)........................ 2632
Drawing by H. L. Todd.

PLATE CCCLXXV.

925. **Ancylopsetta quadrocellata** Gill.......................... 2634

926. **Pleuronichthys decurrens** Jordan and Gilbert.............. 2637
Drawing by A. H. Baldwin from No. 27115, U.S.N.M., collected by Dr. Jordan at San Francisco, California.

PLATE CCCLXXVI.

Text page.

927. **Inopsetta ischyra** (Jordan and Gilbert) 2641
Drawing by H. L. Todd from No. 32913, U.S.N.M., collected at Unalaska by E. W. Nelson.

928. **Lepidopsetta bilineata** (Ayres) 2643
Drawing from No. 27602, U.S.N.M., collected by Dr. Bean at St. Paul, Kadiak Island, Alaska.

PLATE CCCLXXVII.

929. **Limanda ferruginea** (Storer) 2644
Drawing by H. L. Todd from No. 21903, U.S.N.M., collected at Gloucester, Massachusetts, by the U. S. Fish Commission.

930. **Limanda aspera** (Pallas) 2645
Drawing from No. 27944, U.S.N.M., collected by Dr. Bean at Sitka, Alaska.

PLATE CCCLXXVIII.

931. **Limanda proboscidea** Gilbert 2645
Drawing by A. H. Baldwin from the type, collected by the *Albatross* in Bristol Bay, Alaska.

932. **Limanda beanii** Goode 2646
Drawing by H. L. Todd from the type, No. 26102, U.S.N.M., collected by the *Fish Hawk* at Station 875, off the south coast of New England.

PLATE CCCLXXIX.

933. **Pseudopleuronectes americanus** (Walbaum) 2647
Drawing by H. L. Todd from a specimen in the U.S.N.M.

934. **Pleuronectes quadrituberculatus** Pallas 2648
Drawing by H. L. Todd from No. 28025, U.S.N.M., collected at St. Paul, Kadiak, by W. J. Fischer.

PLATE CCCLXXX.

935. **Liopsetta glacialis** (Pallas) 2649
Drawing by H. L. Todd from No. 27947, U.S.N.M., collected in Kotzebue Sound by Dall and Bean.

936. **Liopsetta putnami** (Gill) 2650
Drawing by H. L. Todd from No. 5368, U.S.N.M., collected at Salem, Massachusetts, by F. W. Putnam.

PLATE CCCLXXXI.

937, 937*a*. **Platichthys stellatus** (Pallas) 2652
Drawing by H. L. Todd from No. 27640, U.S.N.M., collected by Dr. Bean in Alaska.

PLATE CCCLXXXII.

Text page.

938. **Lophopsetta maculata** (Mitchill) 2660
Drawing by H. L. Todd.

939. **Platophrys ocellatus** (Agassiz) 2663
Drawing by H. L. Todd from No. 34972, U.S.N.M., type of *P. nebularis* Jordan and Gilbert, collected by Dr. Jordan at Key West, Florida.

PLATE CCCLXXXIII.

940. **Trichopsetta ventralis** (Goode and Bean) 2669
Drawing by H. L. Todd from No. 37372, U.S.N.M., collected by the *Albatross* at Station 2378, in N. lat. 29° 14′ 30″, W. long. 88° 09′ 30″, in 68 fathoms.

941. **Syacium papillosum** (Linnæus) 2671
Drawing by H. L. Todd from the type of *Hemirhombus patulus* Bean, No. 30180, U.S.N.M., collected by Silas Stearns at Pensacola, Florida.

PLATE CCCLXXXIV.

942. **Azevia panamensis** (Steindachner) 2677
Drawing by A. H. Baldwin from No. 15, Mus. Comp. Zool.

943. **Citharichthys sordidus** (Girard) 2679
Drawing by H. L. Todd from No. 31991, U.S.N.M., collected by Capt. H. E. Nichols in Johnstons Straits, British Columbia.

PLATE CCCLXXXV.

944. **Citharichthys macrops** Dresel 2684
Drawing by H. L. Todd from the type, No. 21500, U.S.N.M., collected by Silas Stearns at Pensacola, Florida.

945. **Etropus rimosus** Goode and Bean 2688
Drawing by H. L. Todd from the type, collected by the *Albatross* at Station 2408, in N. lat. 28° 28′, W. long. 84° 25′, in 21 fathoms.

PLATE CCCLXXXVI.

946. **Etropus crossotus** Jordan and Gilbert 2689
Drawing by H. L. Todd from No. 26571, U.S.N.M., collected by Silas Stearns at Cedar Keys, Florida.

947. **Achirus lineatus** (Linnæus) 2697
Drawing by H. L. Todd.

PLATE CCCLXXXVII.

948. **Achirus fasciatus** Lacépède 2700
Drawing by H. L. Todd.

949. **Symphurus marginatus** (Goode and Bean) 2706
Drawing by H. L. Todd from a specimen collected by the *Albatross* at Station 2376, in N. lat 29° 03′ 15″, W. long. 88° 16′, in 324 fathoms.

PLATE CCCLXXXVIII.

Text page.

950. **Symphurus plagiusa** (Linnæus) 2710
Drawing by H. L. Todd from No. 15017, U.S.N.M., collected by Dr. H. C. Yarrow at Beaufort, North Carolina.

951. **Symphurus williamsi** Jordan and Culver 2711
Drawing by Anna L. Brown from the type, No. 2943, L. S. Jr. Univ. Mus., collected by the Hopkins Expedition at Mazatlan, Mexico.

952. **Lophius piscatorius** Linnæus 2713
Drawing by H. L. Todd from a specimen in the U.S.N.M.

PLATE CCCLXXXIX.

953. **Chaunax pictus** Lowe 2726
Drawing by H. L. Todd from No. 26021, U.S.N.M., collected by the *Albatross* at Station 869.

954. **Ceratias holbolli** Kröyer 2729
Drawing by A. H. Baldwin from Gaimard, Voy. Skand., Poissons, pl. IX.

PLATE CCCXC.

955. **Mancalias shufeldti** (Gill) 2730
Drawing by H. L. Todd from the type, No. 33552, U.S.N.M., collected by the *Albatross* at Station 2099, in N. lat. 37° 12′ 20″, W. long. 69° 39′, in 2,949 fathoms.

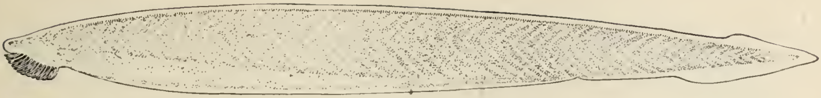
956. **Cryptopsaras couesii** Gill 2731
Drawing by H. L. Todd from No. 33558, U.S.N.M., collected by the *Albatross* at Station 2101, in N. lat. 38° 13′ 30″, W. long. 68° 24′, in 1,686 fathoms.

PLATE CCCXCI.

957. **Caulophryne jordani** Goode and Bean 2735
Drawing by S. F. Denton from the type, No. 39265, U.S.N.M., collected by the *Albatross* in N. lat. 39° 27′, W. long. 71° 15′, in 1,276 fathoms.

PLATE CCCXCII.

958, 958*a*, 958*b*. **Ogcocephalus vespertilio** (Linnæus) 2737
Drawing by H. L. Todd from No. 2316, U.S.N.M., collected by the *Albatross* in N. lat. 24° 25′ 30″, W. long. 81° 47′ 45″.



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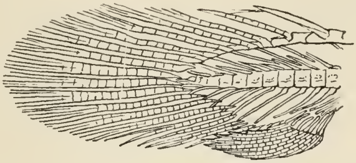

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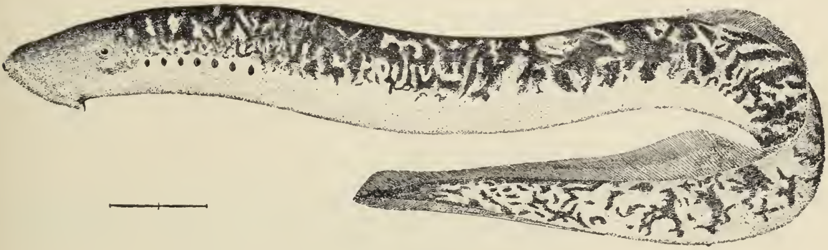

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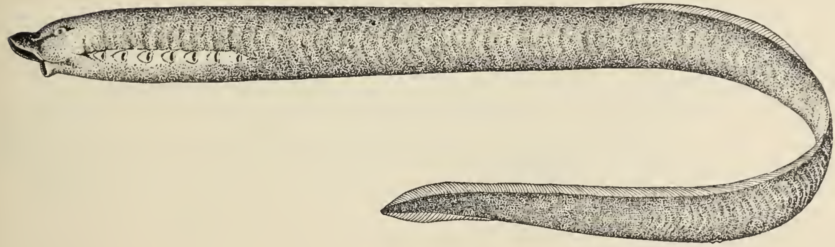
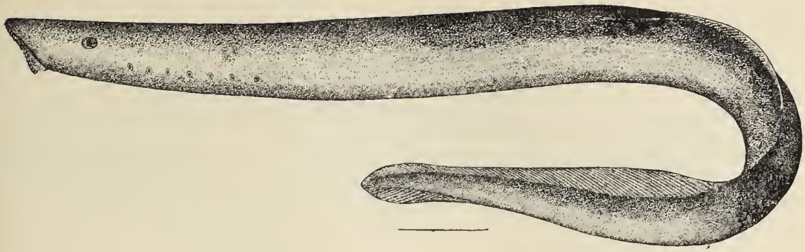


4

1. Branchiostoma caribæum. (P. 3.)
2. Tail of Polypterus bichir.
3. Petromyzon marinus. (P. 10.)
4. Entosphenus tridentatus. (P. 12.)



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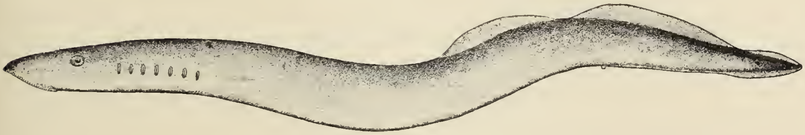

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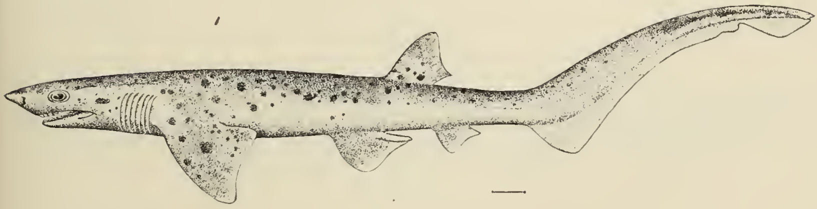

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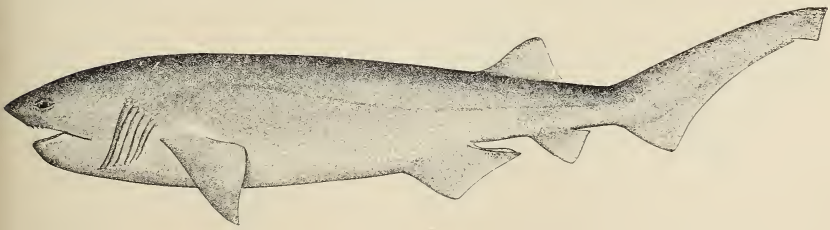
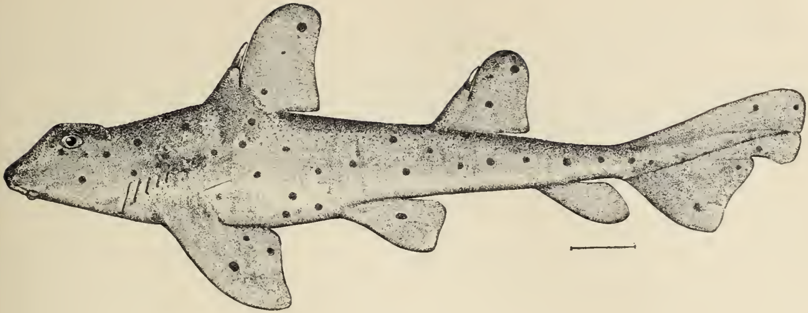


8

5. Lampetra aurea. (P. 13.)
6. Lampetra spadicea. (P. 13.)
7. Notorhynchus maculatus. (P. 17.)
8. Hexanchus griseus. (P. 19.)



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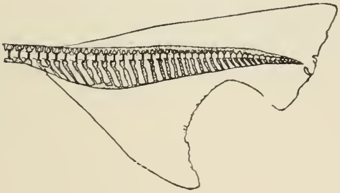

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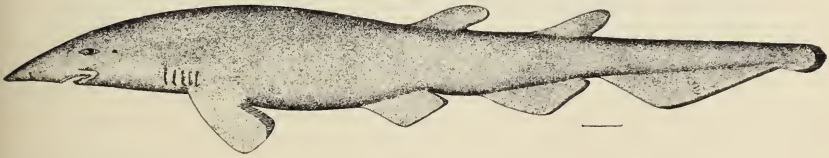

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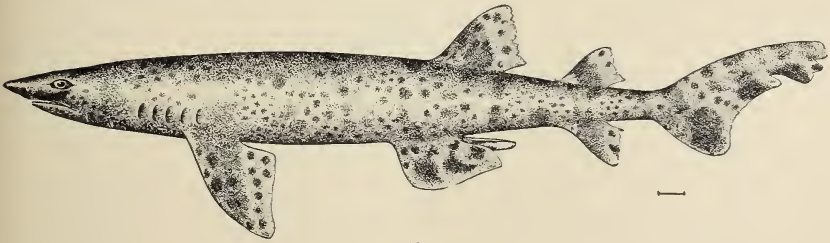
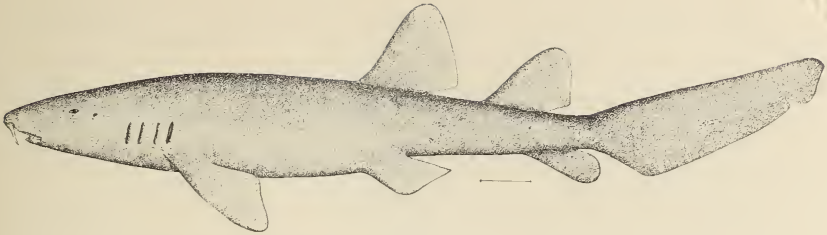


12

9. Gyropleurodus francisci. (P. 20.)
10. Heterocercal tail of Heterodontus philippii.
11. Scylliorhinus profundorum. (P. 22.)
12. Catulus uter. (P. 25.)



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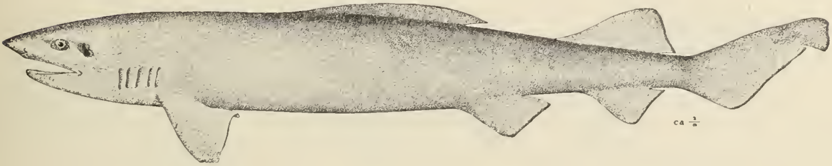

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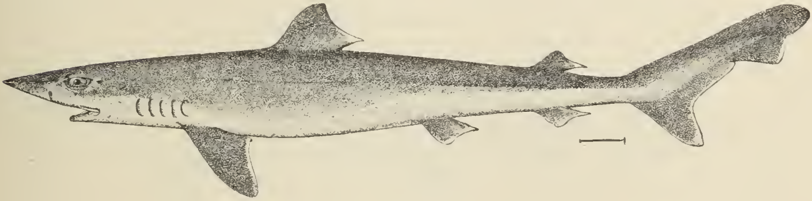

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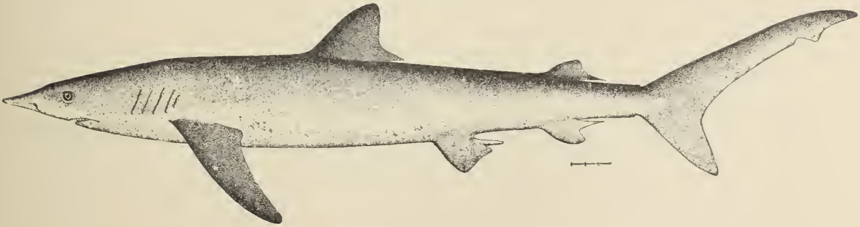
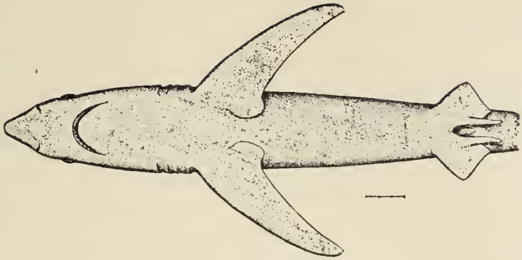
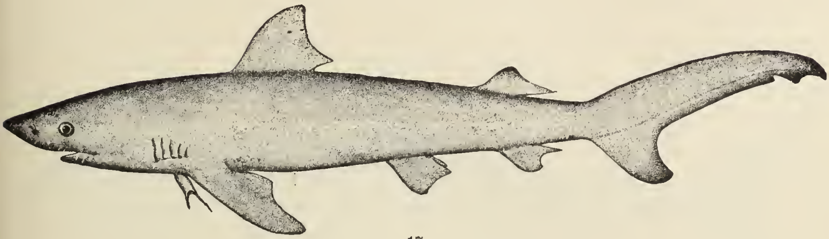


16

13. Ginglymostoma cirratum. (P. 26.)
14. Pseudotriakis microdon. (P. 27.)
15. Galeorhinus zyopterus. (P. 32.)
16. Prionace glauca. (P. 33.)



16*a*



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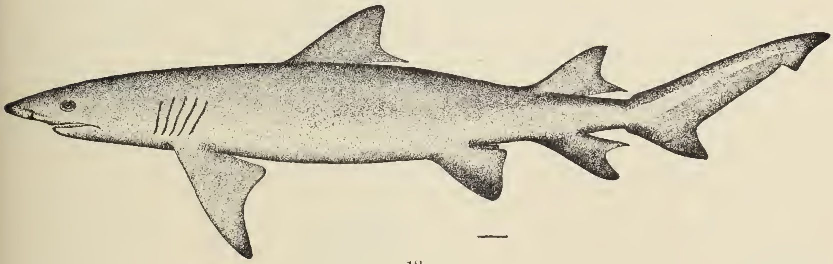

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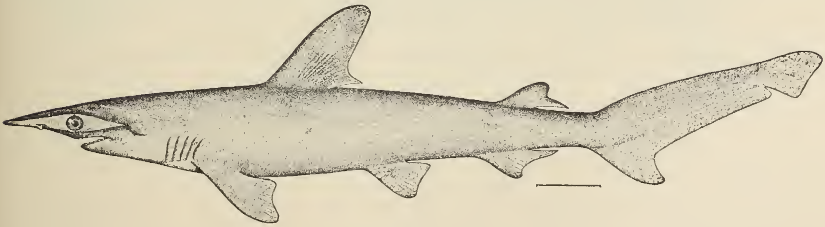
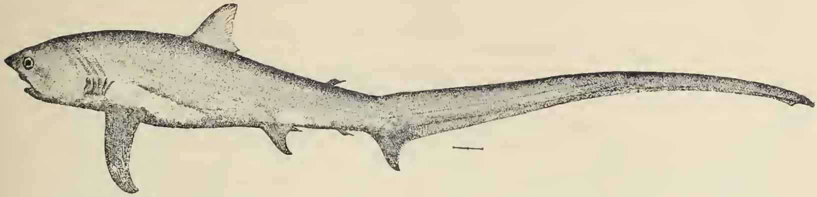


19

16*a*. Prionace glauca. (P. 33.)
17. Carcharhinus lamia. (P. 38.)
18. Hypoprion brevirostris. (P. 41.)
19. Sphyrna tiburo. (P. 44.)



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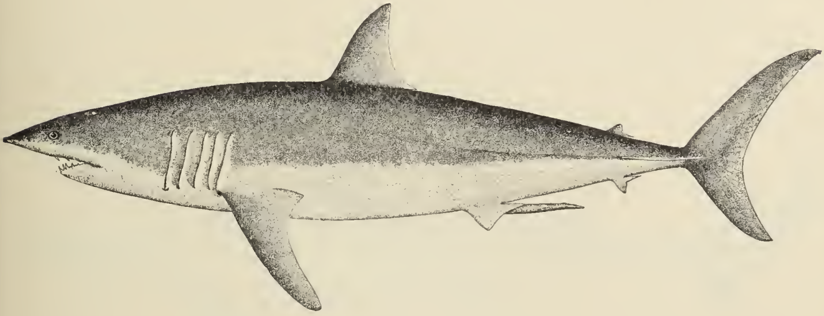

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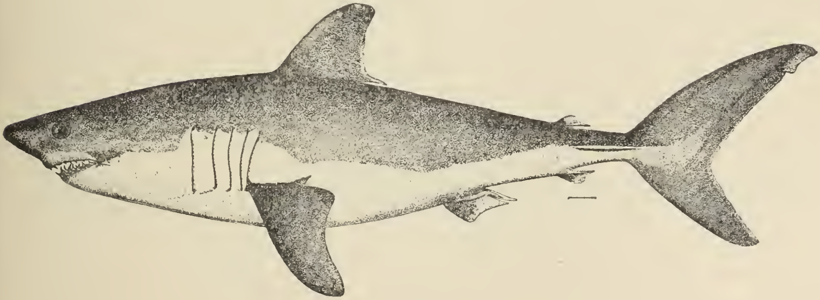
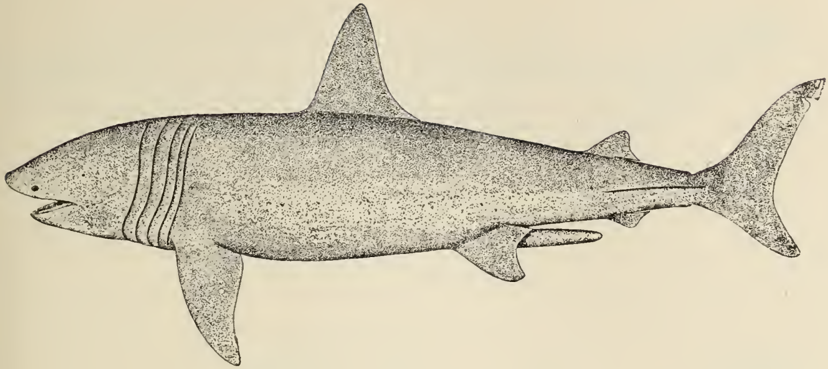


22

20. Alopias vulpes. (P. 45.)
21. Isurus dekayi. (P. 48.)
22. Lamna cornubica. (P. 49.)



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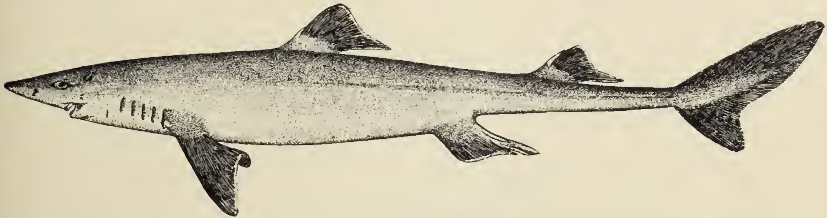

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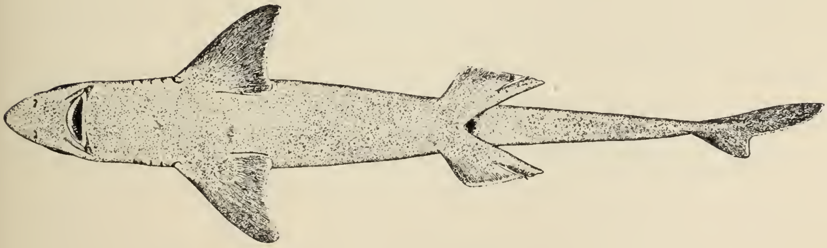
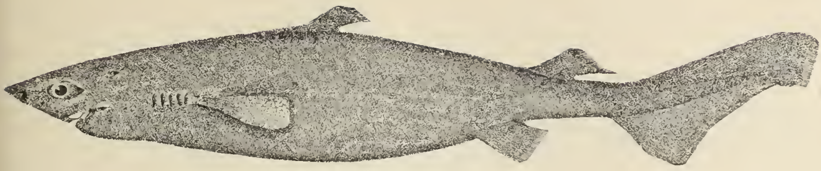


24*a*

23. Cetorhinus maximus. (P. 51.)
24, 24*a*. Squalus acanthias. (P. 54.)



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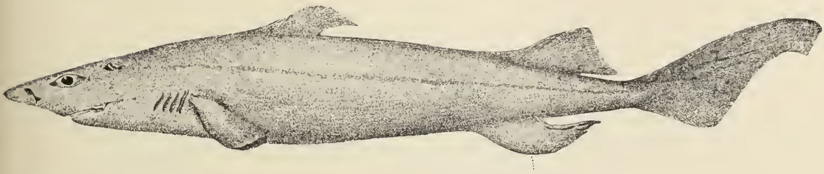

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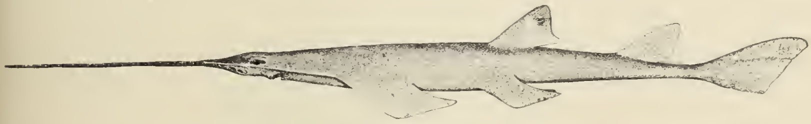

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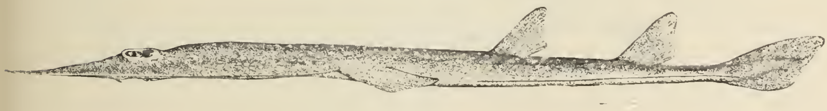
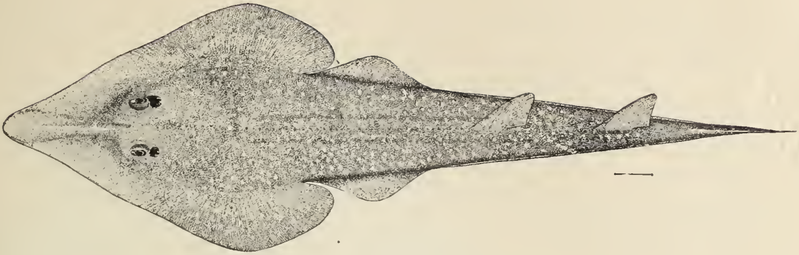
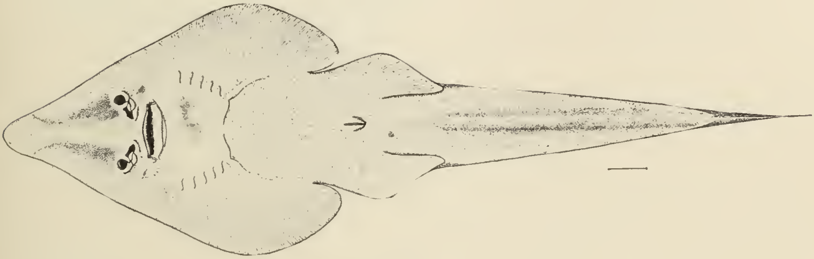


28

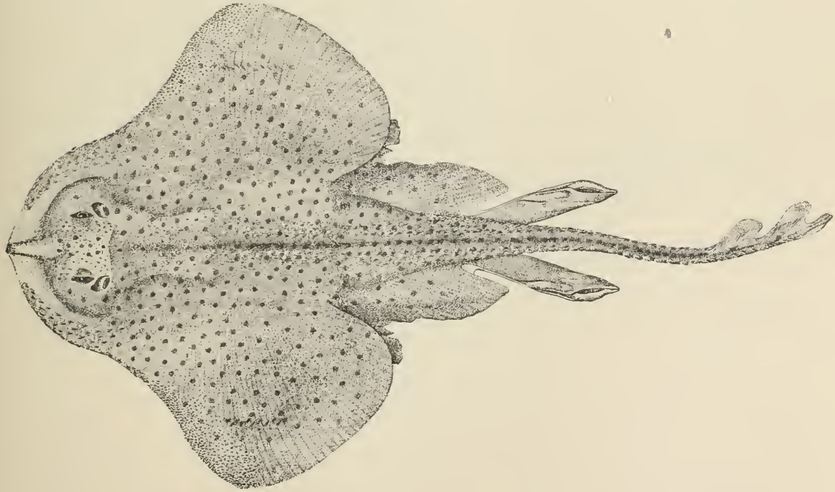
25. CENTROSCYMNUS CŒLOLEPIS. (P. 55.)
26. CENTROSCYLLIUM FABRICII. (P. 56.)
27. PRISTIS PECTINATUS. (P. 60.)
28. RHINOBATUS LENTIGINOSUS. (P. 62.)



28*a*



28*b*



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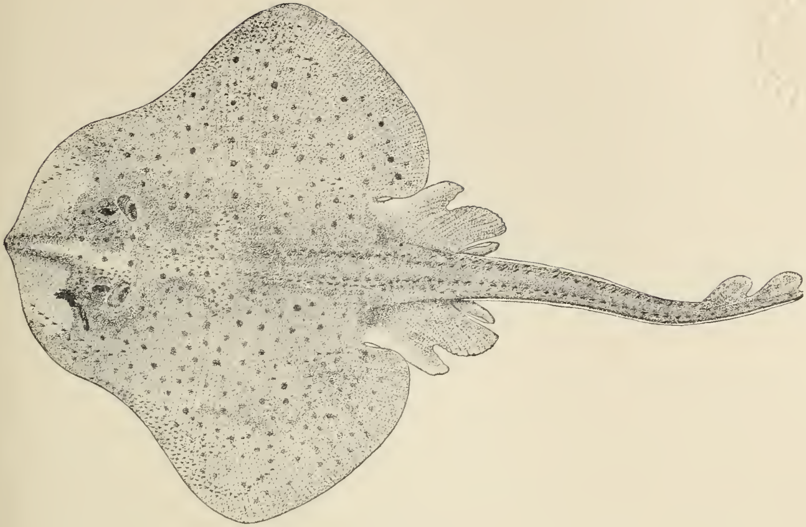
28*a*, 28*b*. Rhinobatus lentiginosus. (P. 62.)
29. Raja erinacea. (P. 68.)



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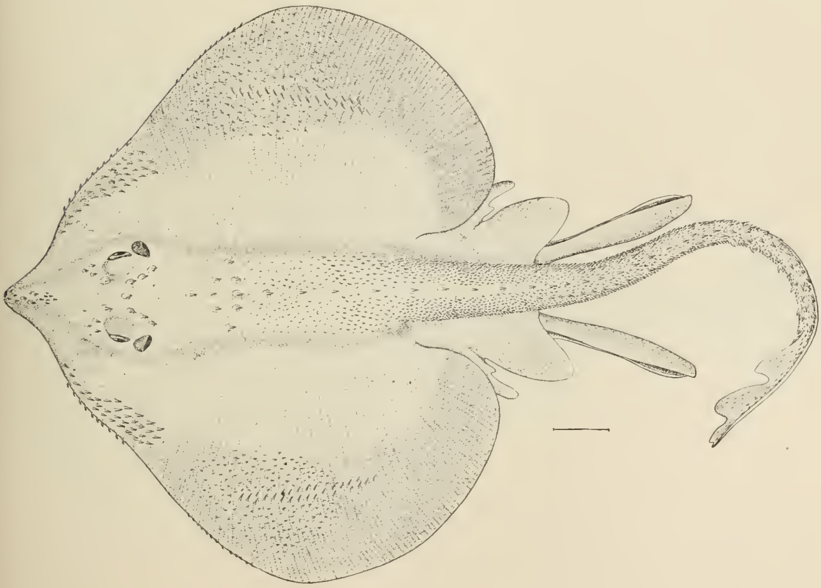
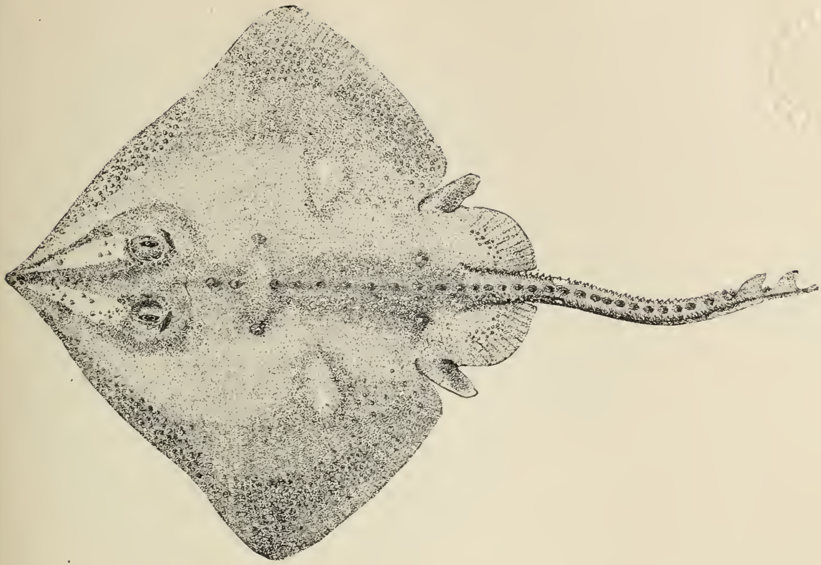


31

30. Raja ocellata. (P. 68.)
31. Raja ackleyi. (P. 70.)



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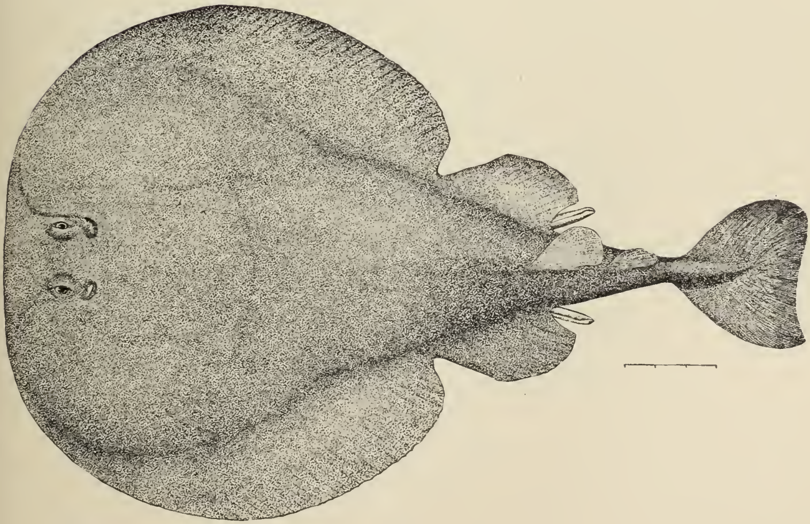
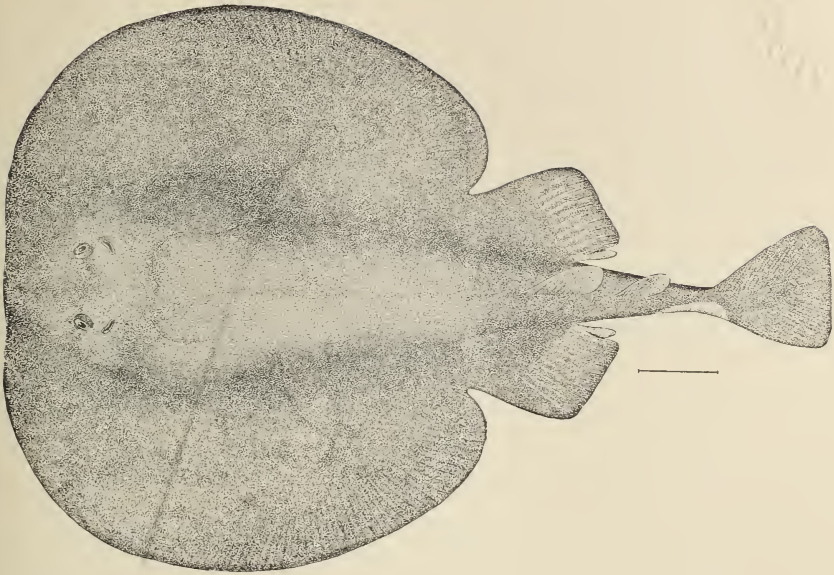


33

32. Raja stellulata. (P. 75.)
33. Tetronarce occidentalis. (P. 77.)



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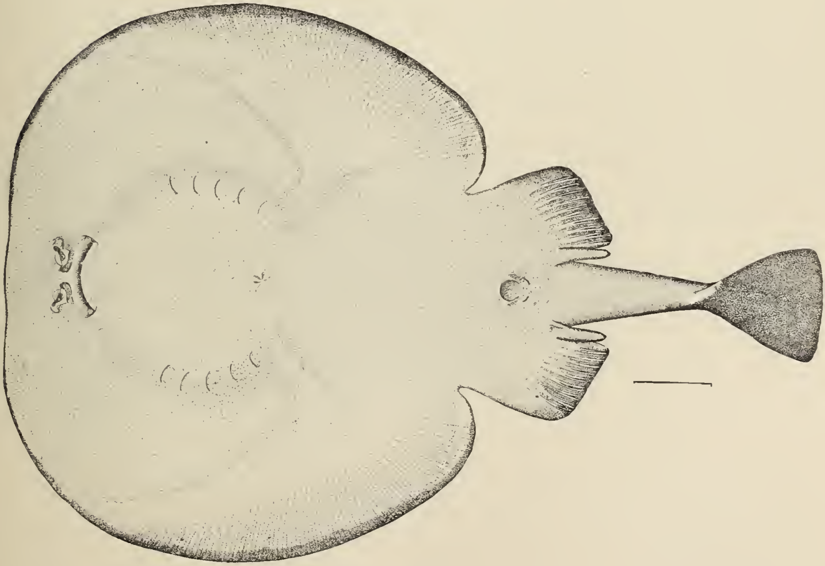
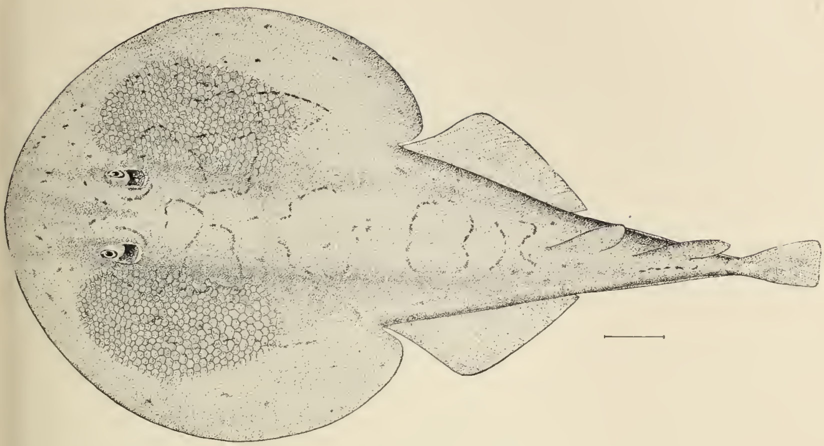


34*a*

34, 34*a*. Tetronarce californica. (P. 77.)



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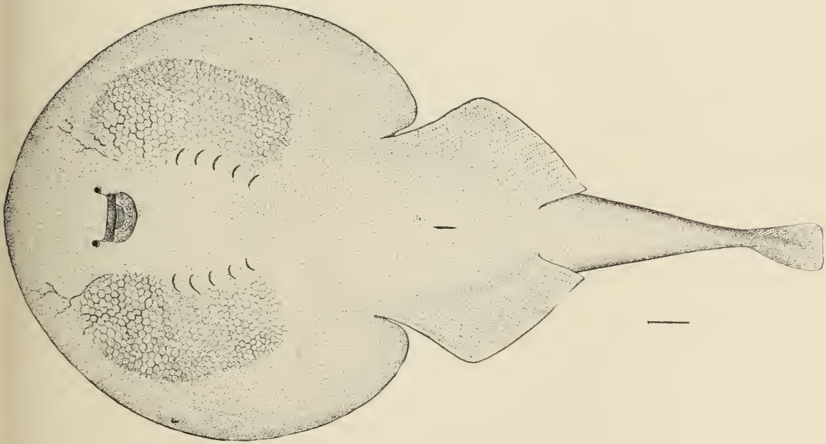
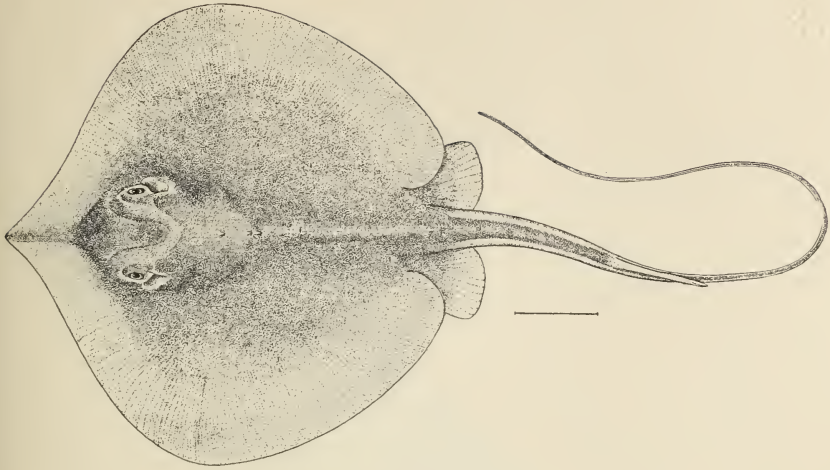


35*a*

35, 35*a*. Narcine brasiliensis. (P. 78.)



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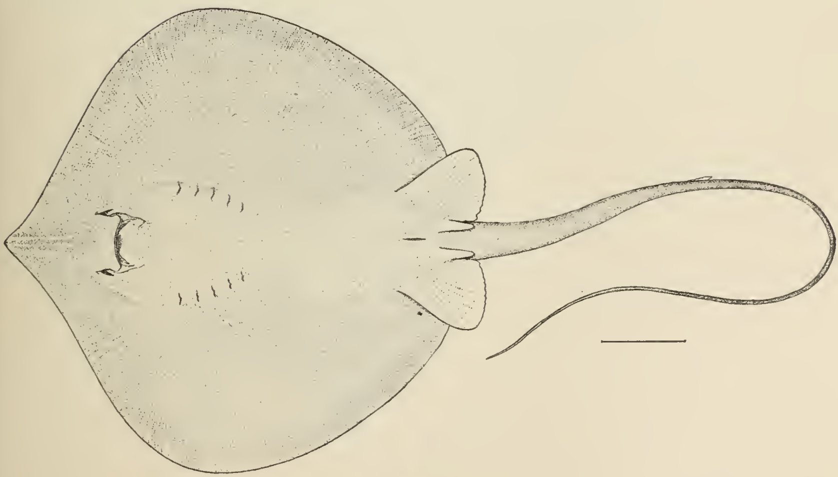
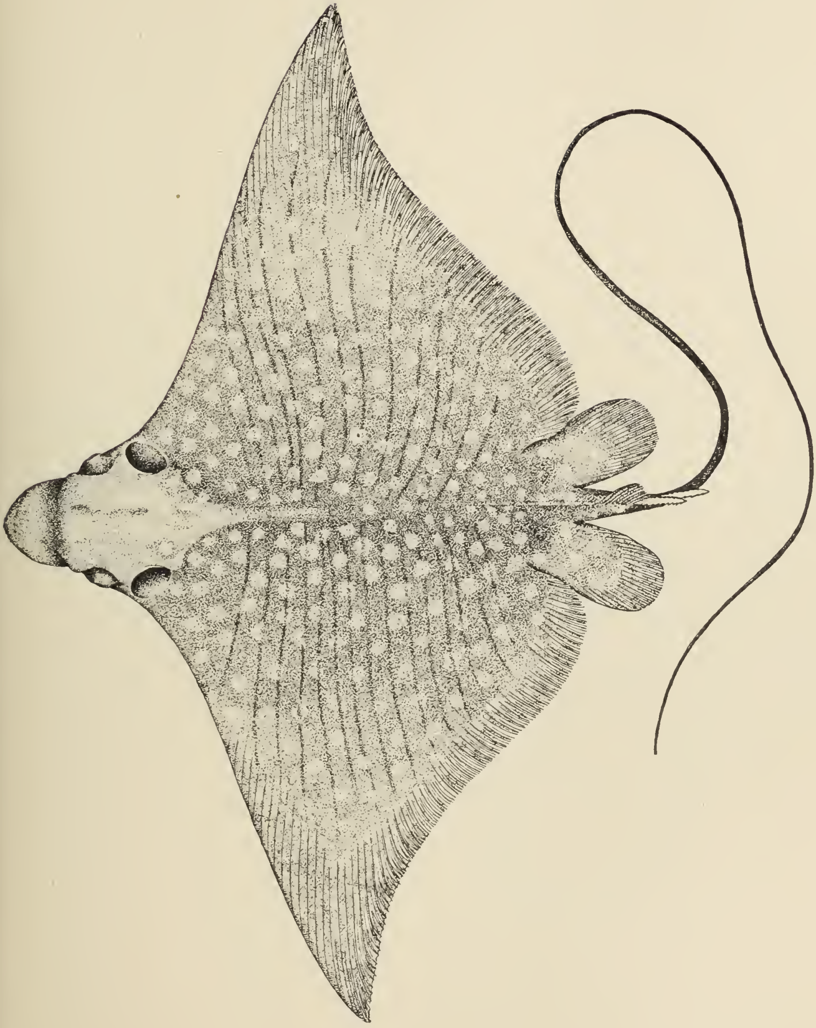


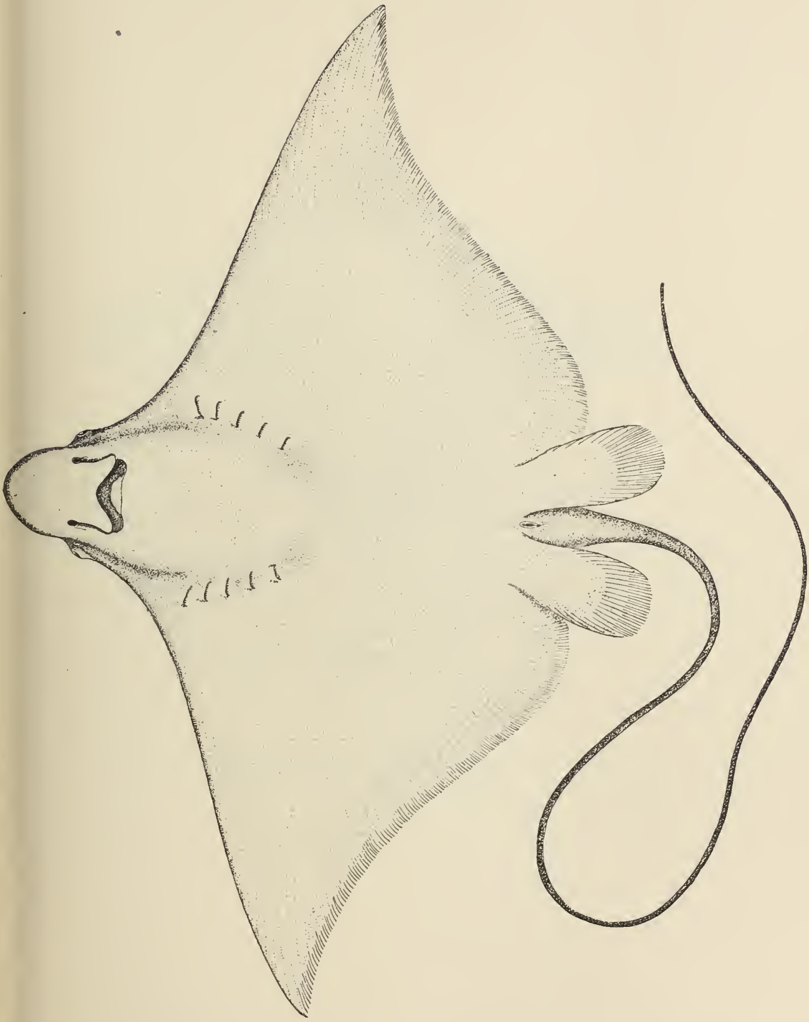
36a

36, 36*a*. DASYATIS SABINA. (P. 84.)



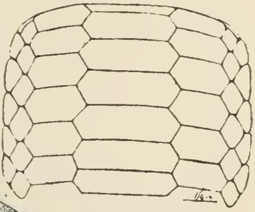
37

37. AETOBATUS NARINARI. (P. 88.)

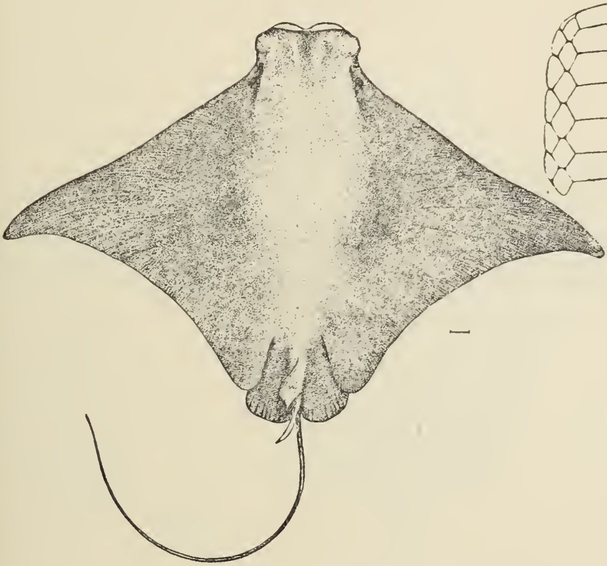


37a

37*a*. AETOBATUS NARINARI. (P. 88.)

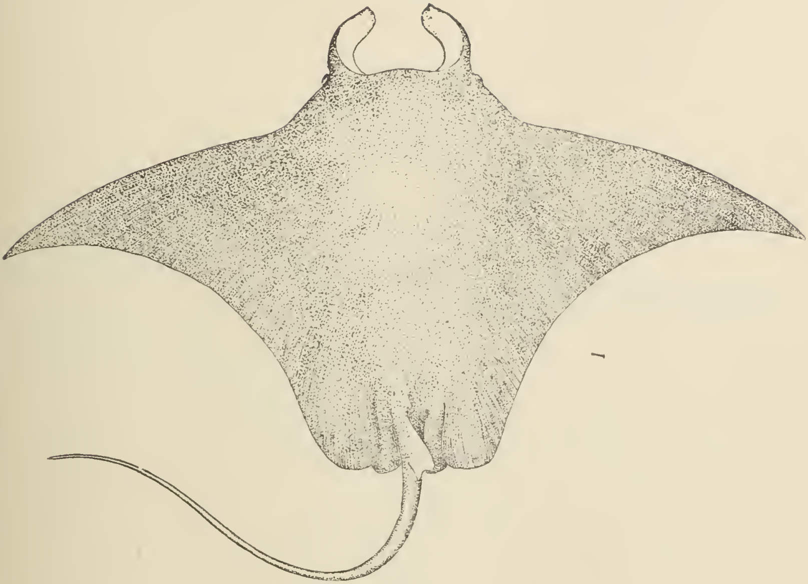


38*a*

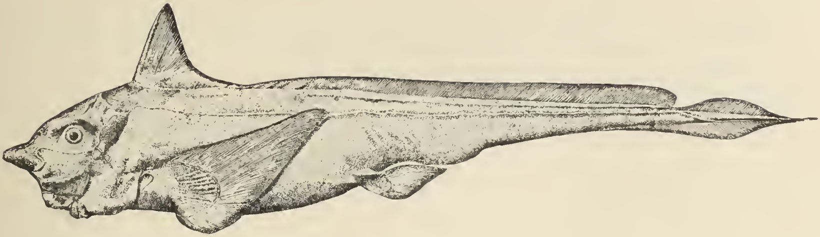


38

38. Rhinoptera steindachneri. (P. 91.)
38*a*. Paved teeth of Rhinoptera steindachneri. (P. 91.)



39. Manta birostris. (P. 92.)



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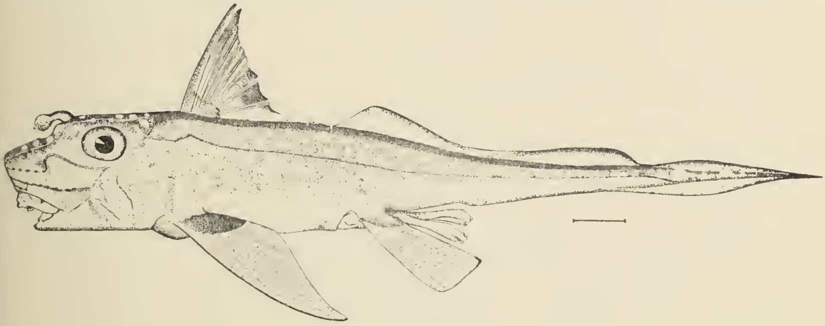

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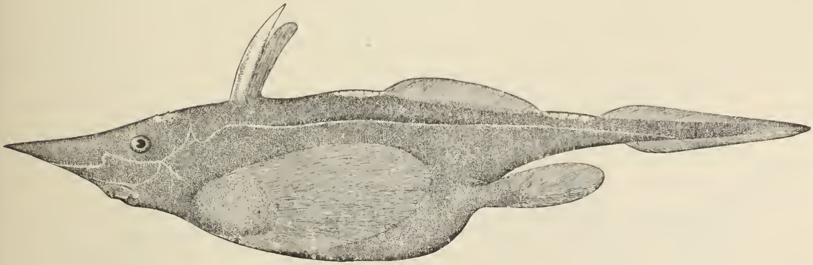
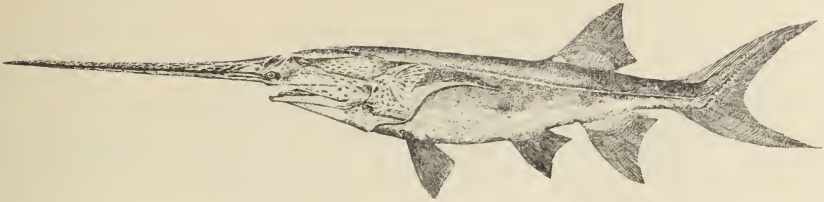


42

40. Chimæra affinis. (P. 95.)
41. Hydrolagus colliei. (P. 95.)
42. Harriotta raleighana. (P. 96.)



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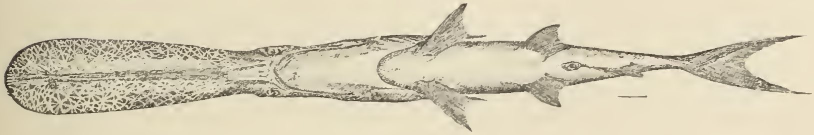
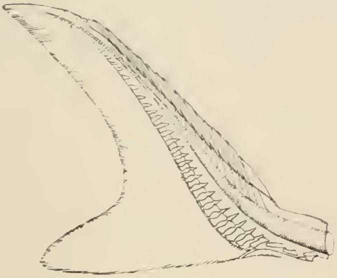


43*a*



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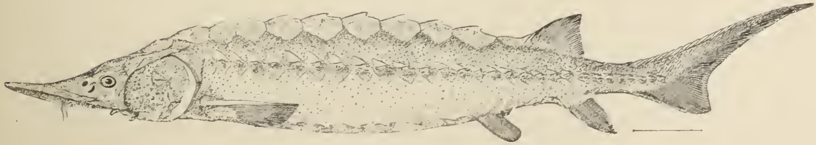
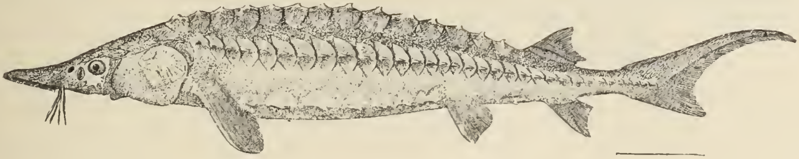


45

43, 43*a*. Polyodon spathula. (P. 101.)
44. Heterocercal tail of Acipenser transmontanus. (P. 104.)
45. Acipenser sturio oxyrhynchus. (P. 105.)



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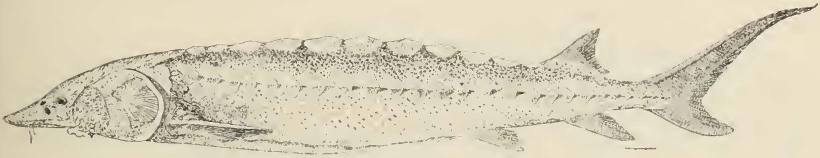

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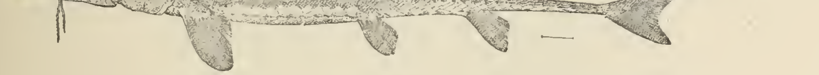
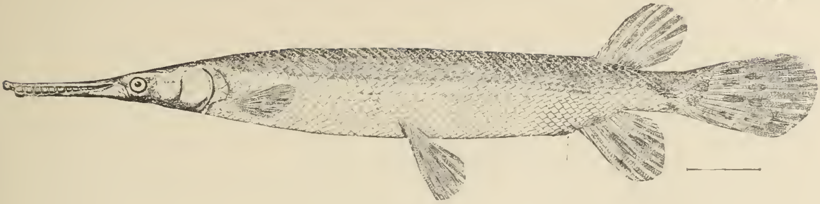


48

46. Acipenser rubicundus. (P. 106.)
47. Acipenser brevirostrum. (P. 106.)
48. Scaphirhychus platorynchus. (P. 107.)



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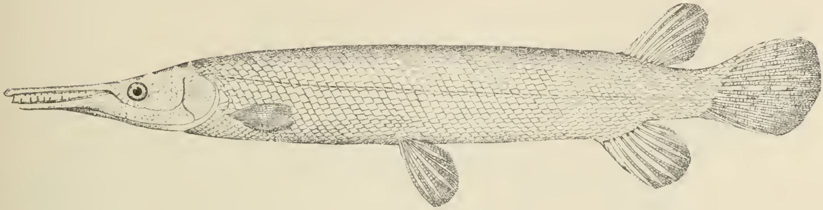

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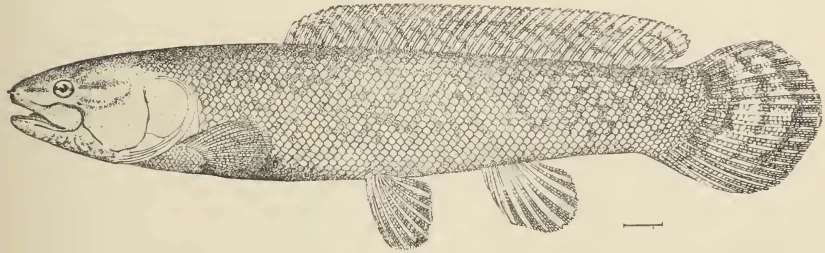

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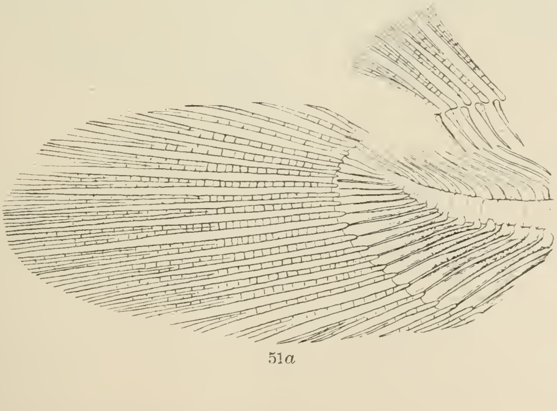
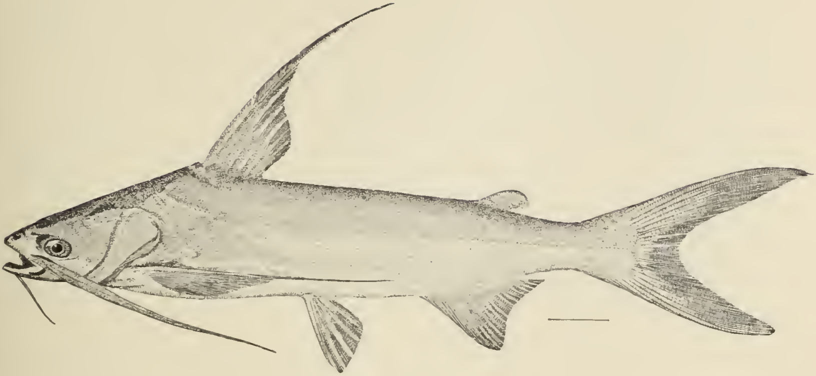
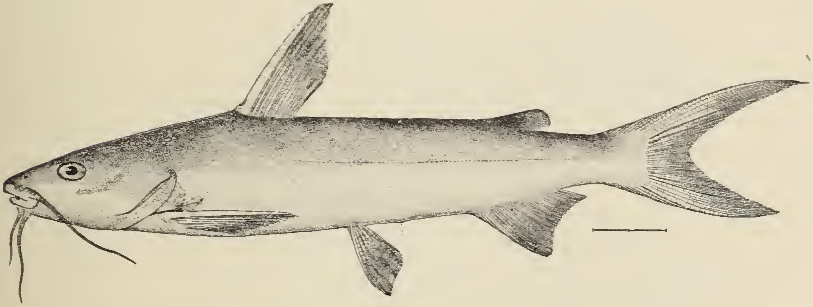


51*a*

49. LEPISOSTEUS PLATOSTOMUS. (P. 110.)
50. LEPISOSTEUS TRISTŒCHUS. (P. 111.)
51. AMIA CALVA; female. (P. 113.)
51*a*. HETEROCERCAL TAIL OF AMIA CALVA. (P. 113.)

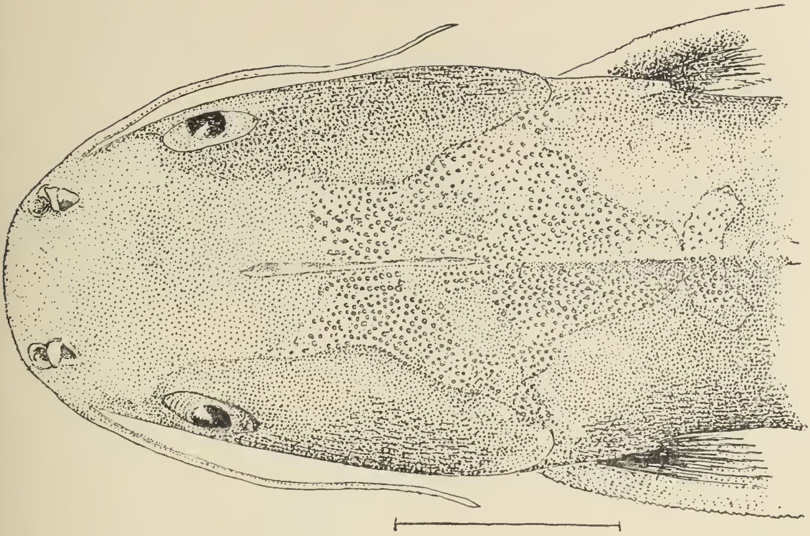


52



53

52. Felichthys marinus. (P. 118.)
53. Galeichthys felis. (P. 128.)



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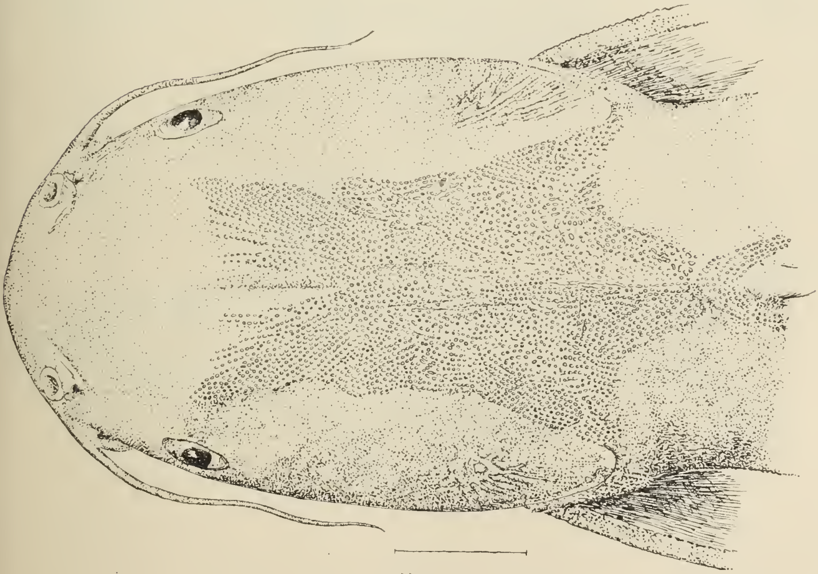
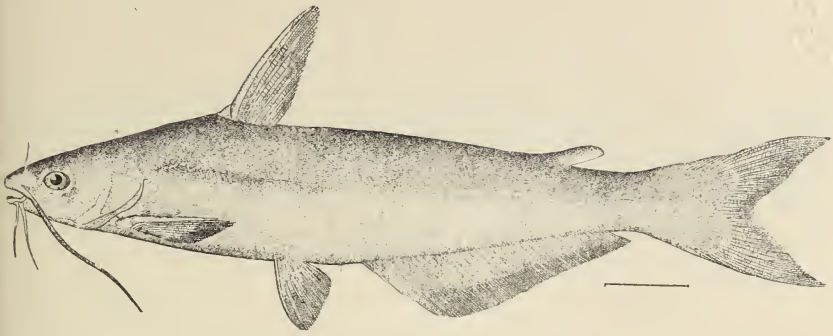


55

54. Galeichthys gilberti. (P. 2773.)
55. Galeichthys azureus. (P. 2775.)



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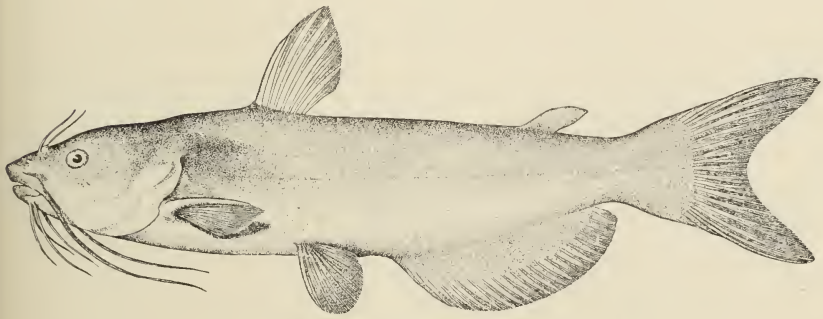

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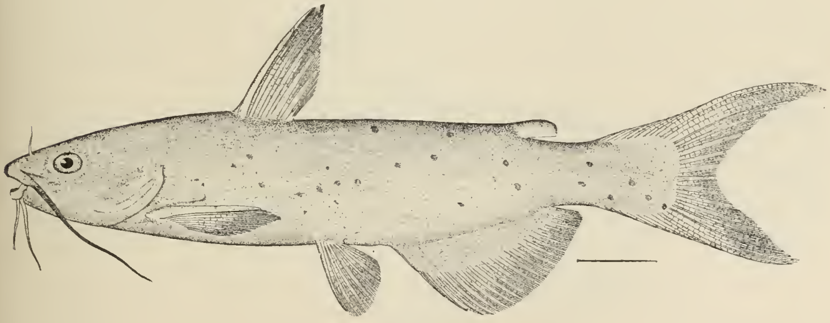
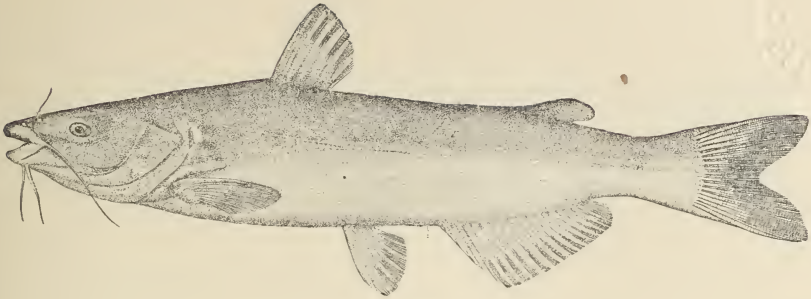


58

56. Ictalurus furcatus. (P. 134.)
57. Ictalurus anguilla. (P. 2788.)
58. Ictalurus punctatus. (P. 134.)



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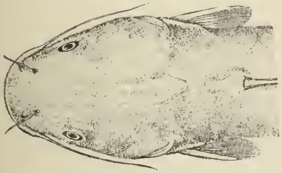
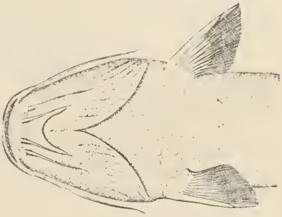
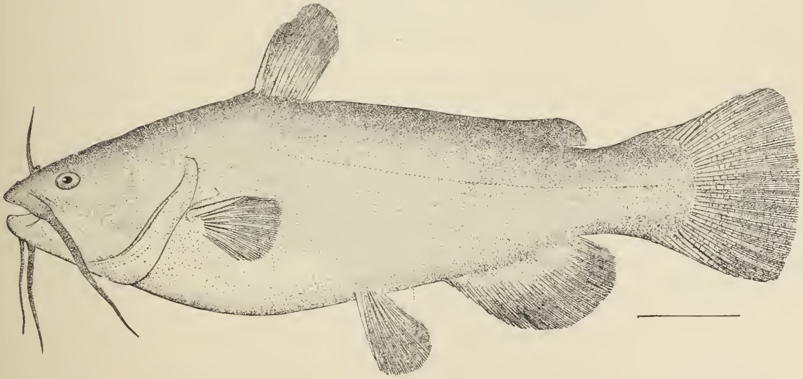


59*a*

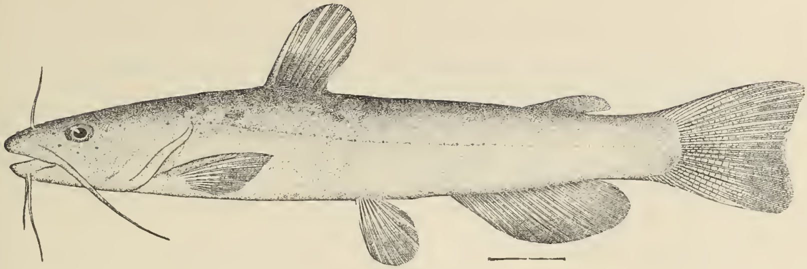


59*b*



60

59, 59*a*, 59*b*. Ameiurus dugesi. (P. 138.)
60. Ameiurus melas. (P. 141.)



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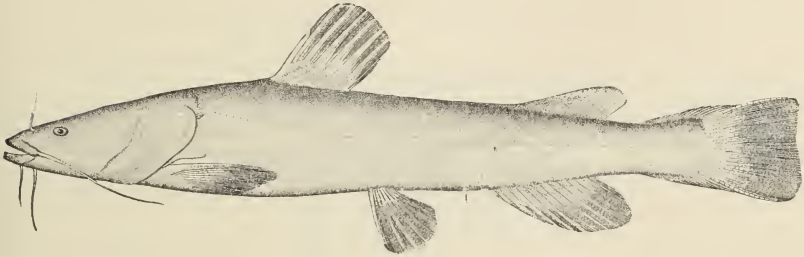

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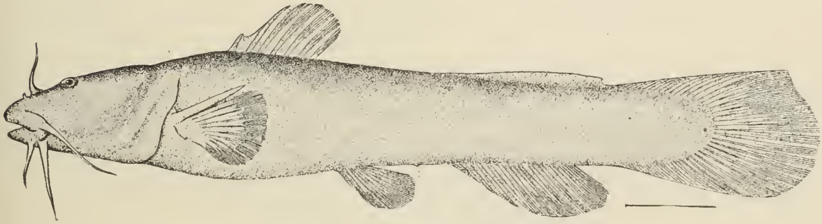

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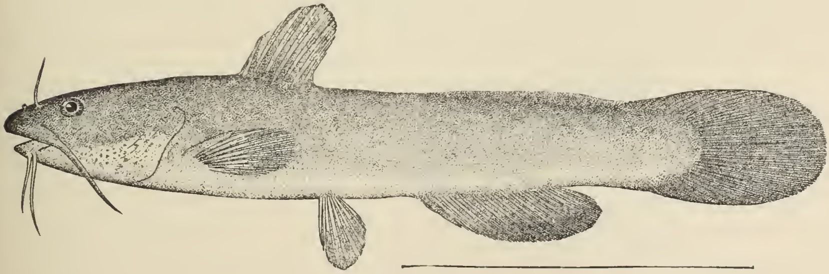
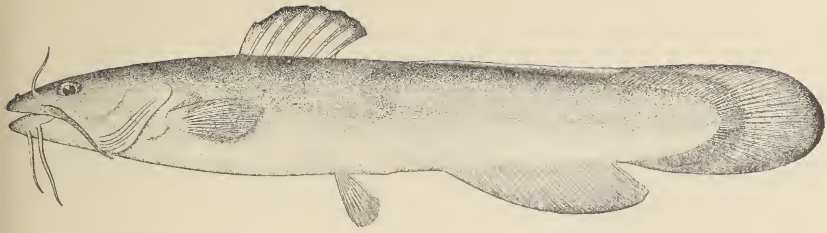


64

61. Ameiurus platycephalus. (P. 142.)
62. Leptops olivaris. (P. 143.)
63. Noturus flavus. (P. 144.)
64. Schilbeodes nocturnus. (P. 146.)



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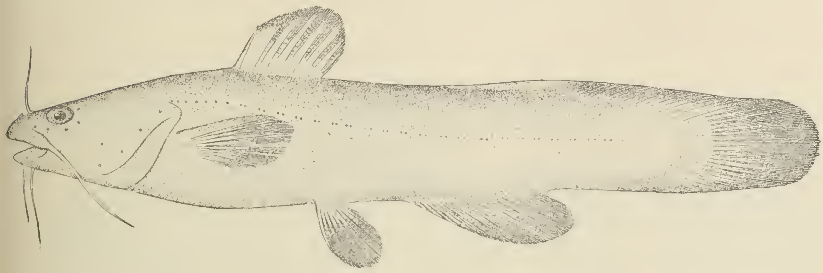

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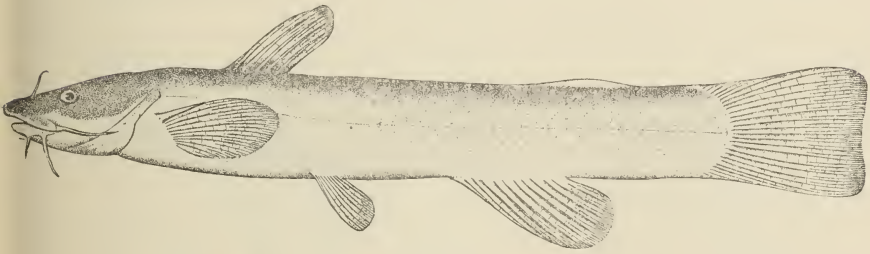

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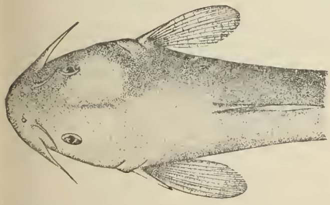
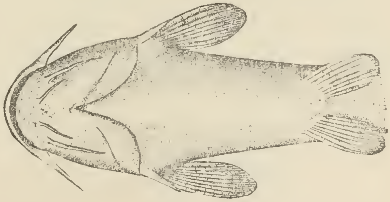
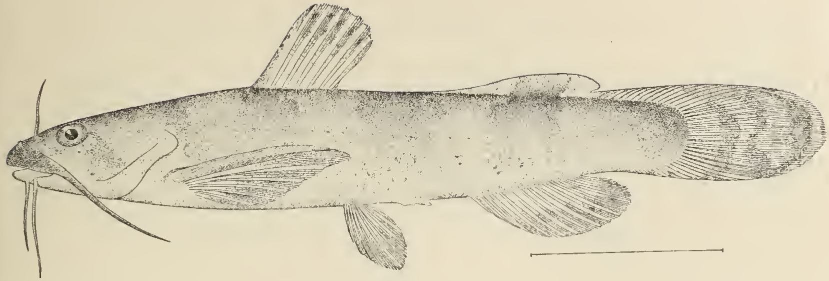


67*a*



67*b*

65. Schilbeodes exilis. (P. 147.)
66. Schilbeodes insignis. (P. 147.)
67, 67*a*, 67*b*. Schilbeodes gilberti. (P. 148.)



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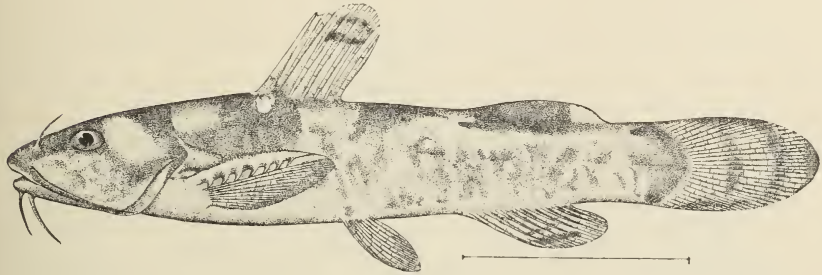

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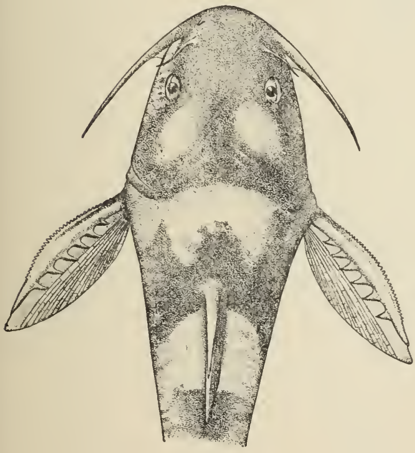
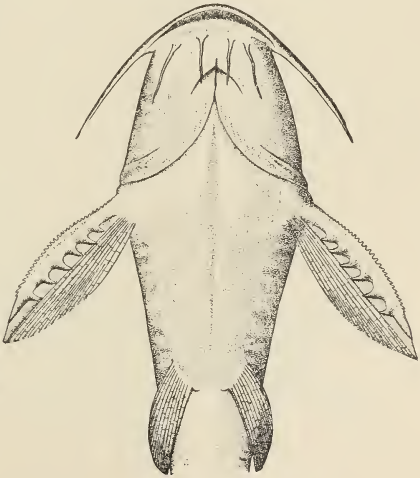
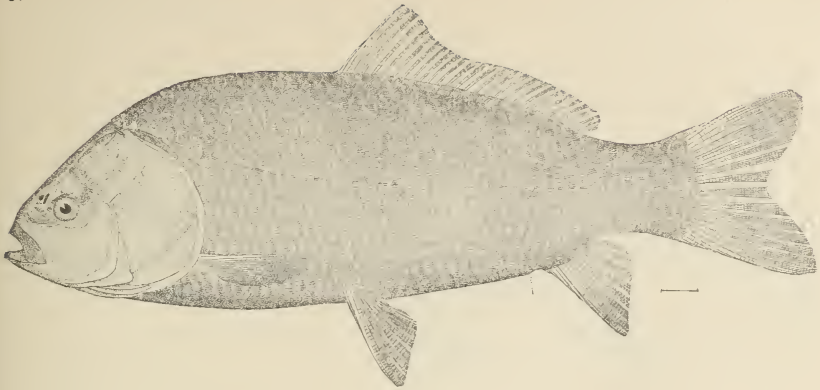


69*a*



69*b*

68. SCHILBEODES MIURUS. (P. 148.)
69, 69*a*, 69*b*. SCHILBEODES FURIOSUS. (P. 149.)



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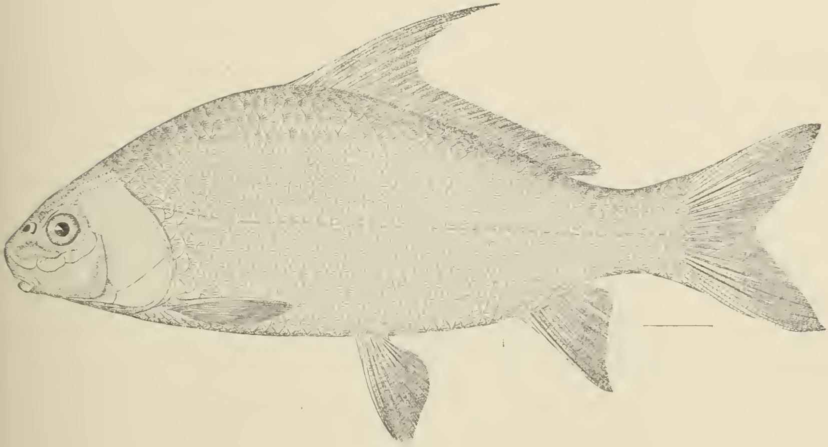

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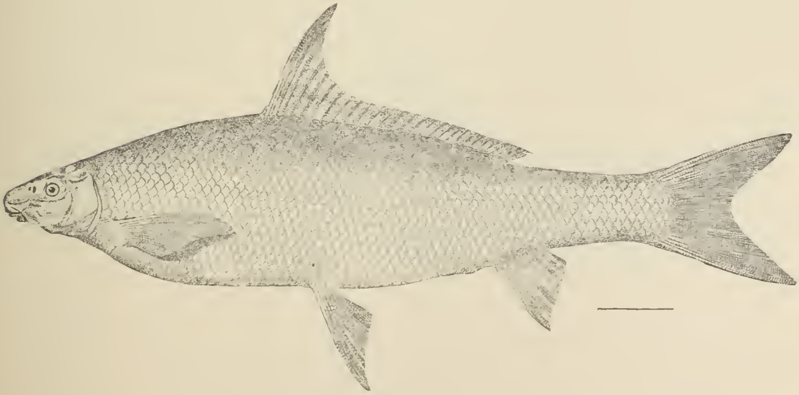
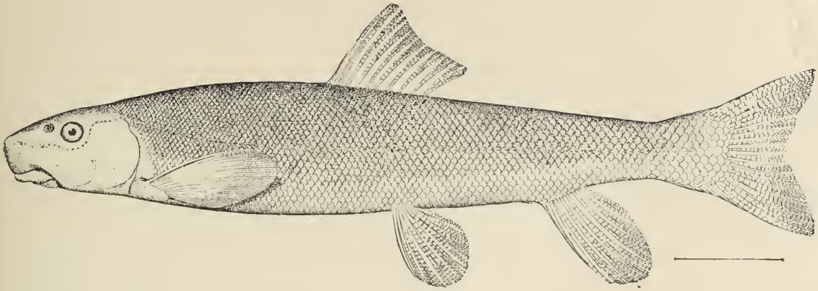


72

70. Ictiobus cyprinella. (P. 163.)
71. Carpiodes cyprinus. (P. 168.)
72. Cycleptus elongatus. (P. 168.)



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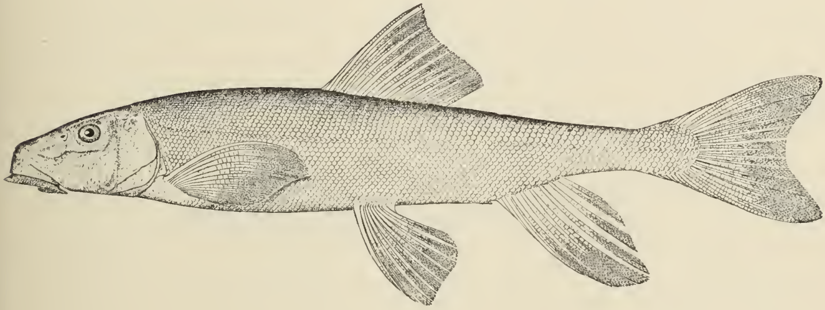

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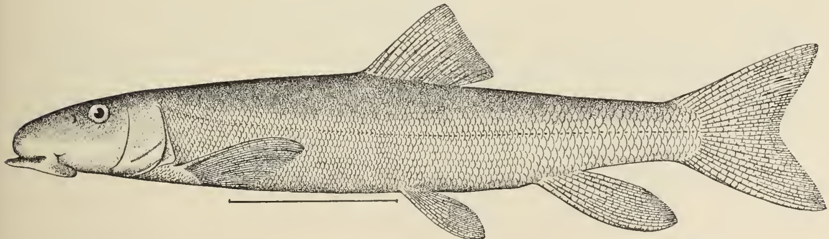
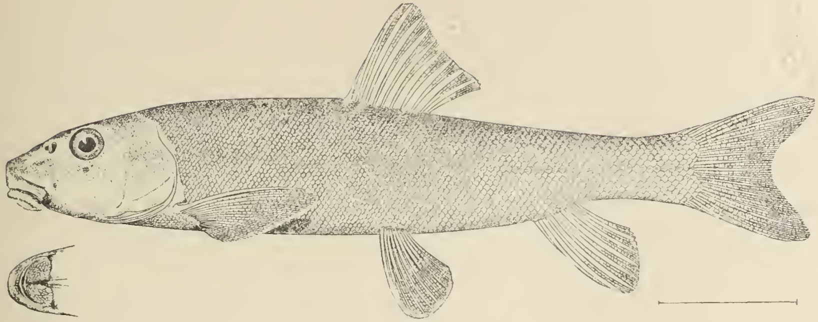


75

73. Pantosteus jordani. (P. 171.)
74. Catostomus latipinnis. (P. 174.)
75. Catostomus griseus. (P. 175.)



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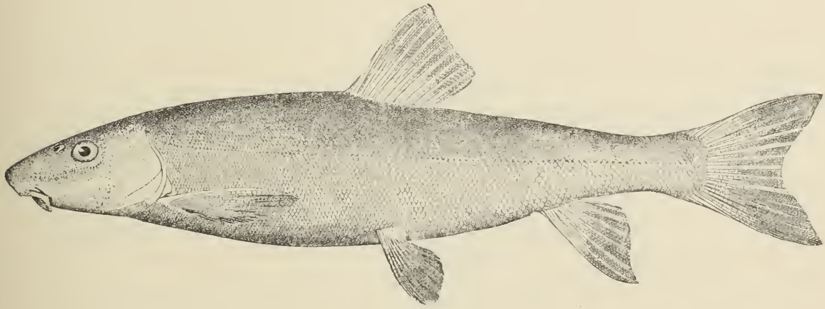

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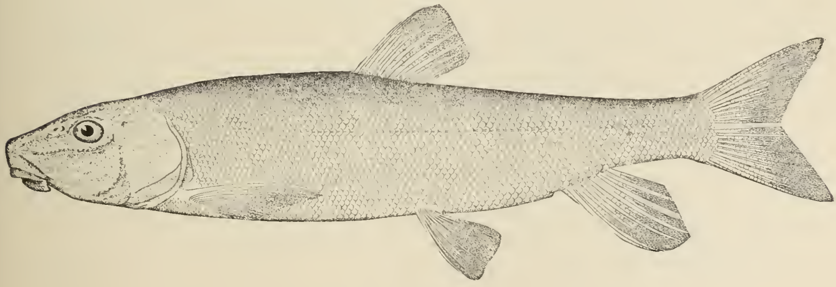
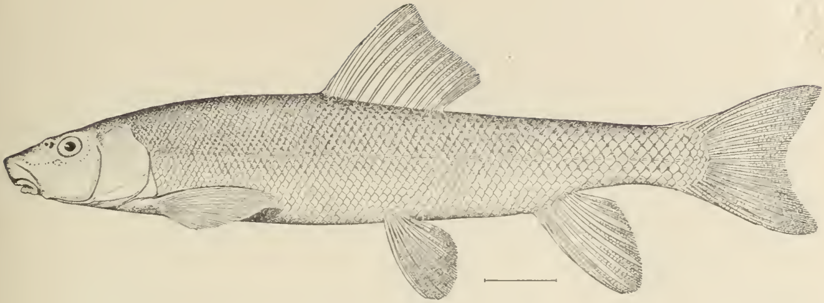


78

76. Catostomus pocatello. (P. 175.)
77. Catostomus catostomus. (P. 176.)
78. Catostomus tahoensis. (P. 177.)



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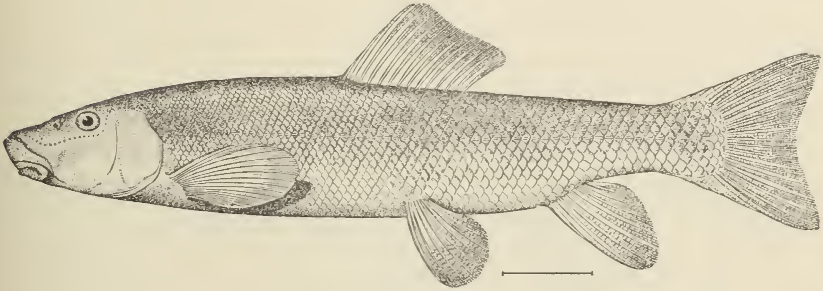

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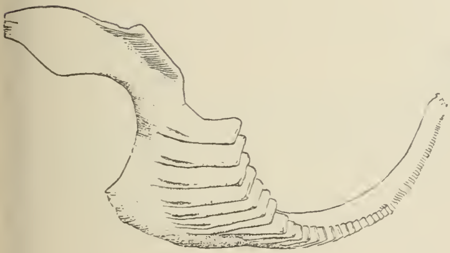

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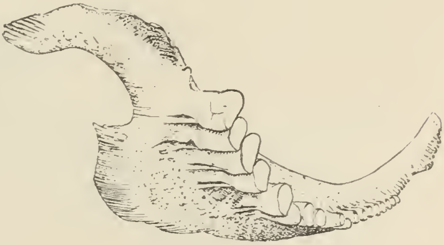
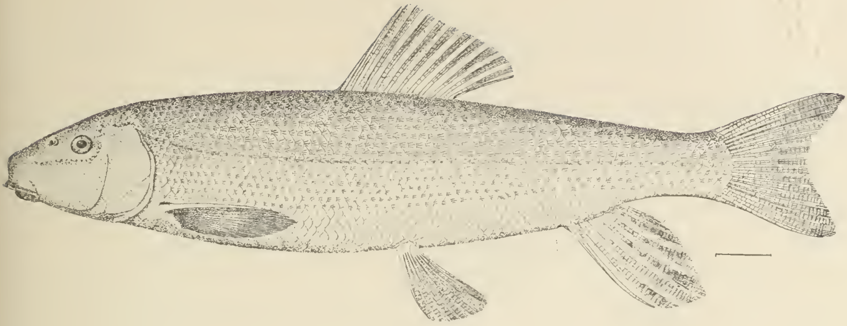


82

79. Catostomus occidentalis. (P. 178.)
80. Catostomus tsiltcoosensis. (P. 2793.)
81. Pharyngeal teeth of Catostomus macrocheilus. (P. 178.)
82. Pharyngeal teeth of Placopharynx duquesnii. (P. 198.)



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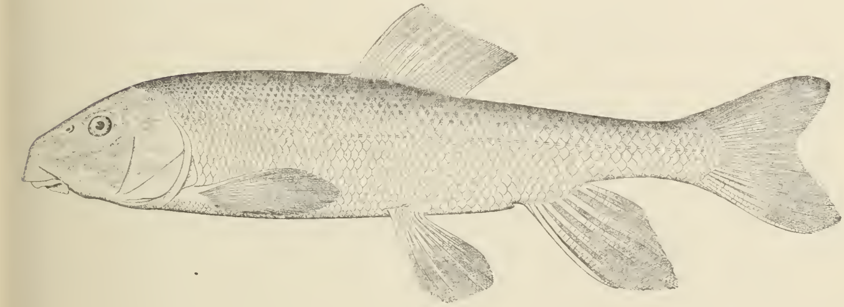

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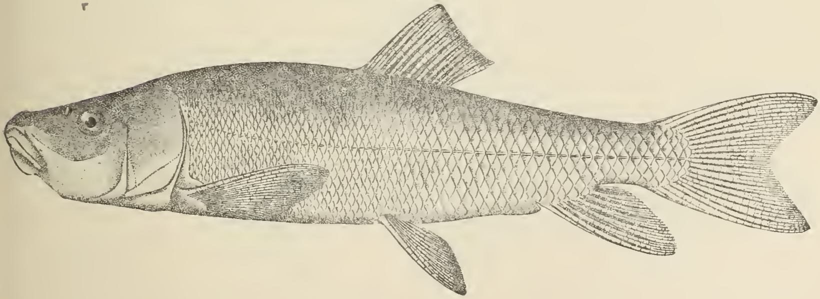
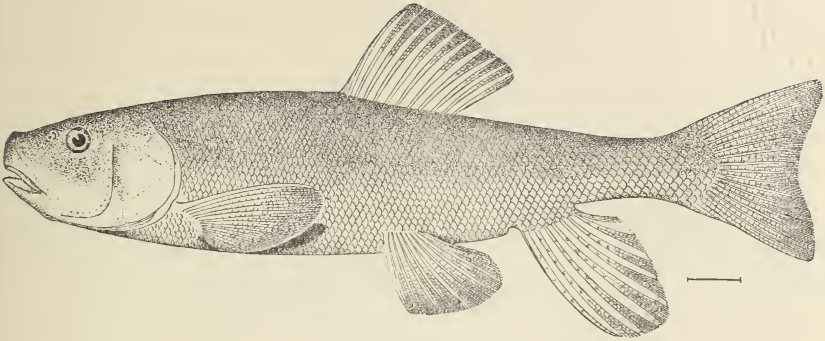


85

83. Catostomus commersonii. (P. 178.)
84. Catostomus ardens. (P. 179.)
85. Chasmistes liorus. (P. 183.)



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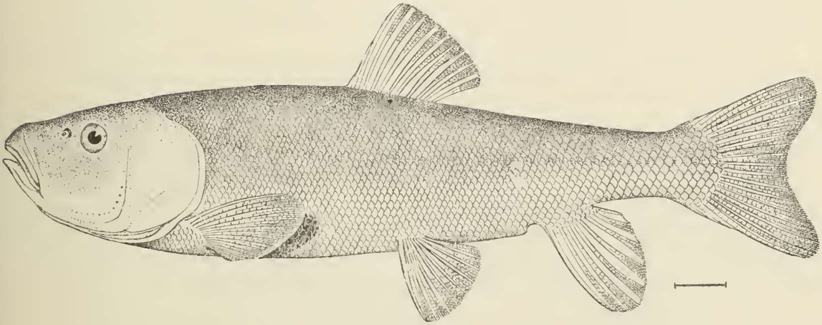

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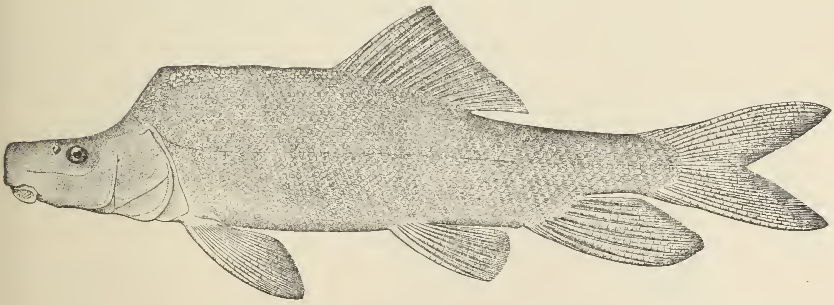
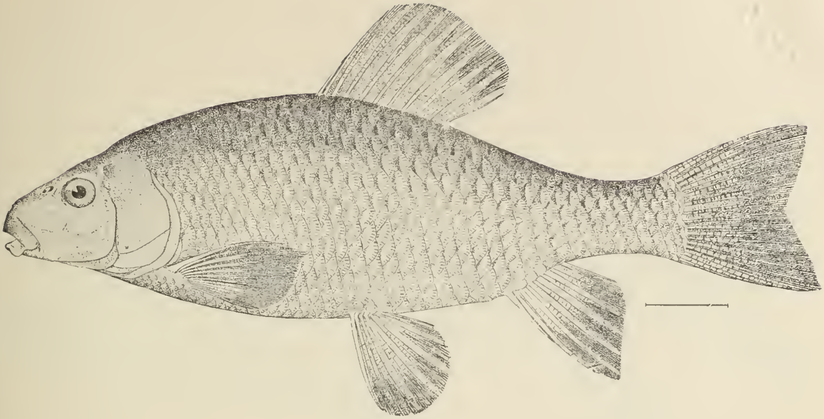


88

86. Chasmistes stomias. (P. 2794.)
87. Chasmistes copei. (P. 2795.)
88. Xyrauchen cypho. (P. 184.)



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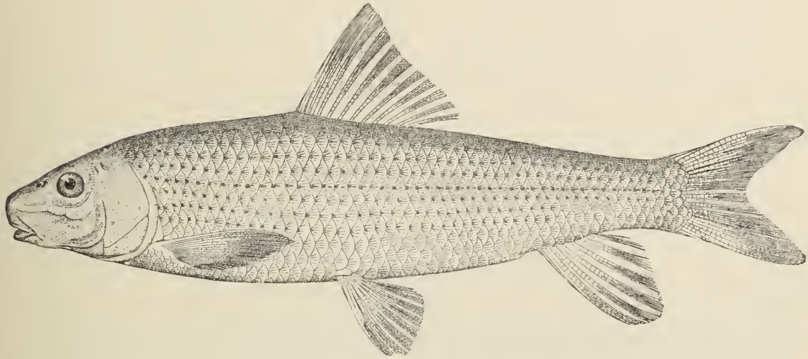

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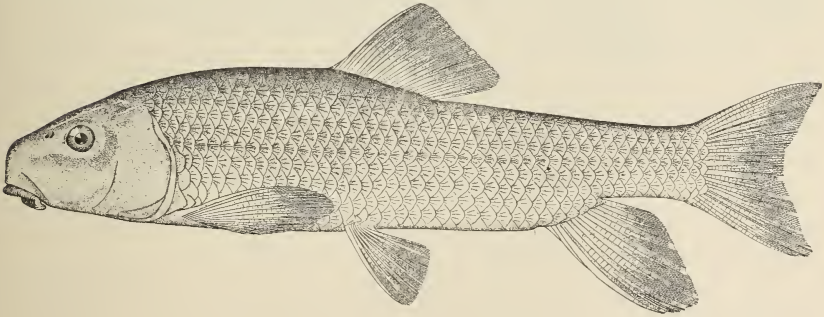
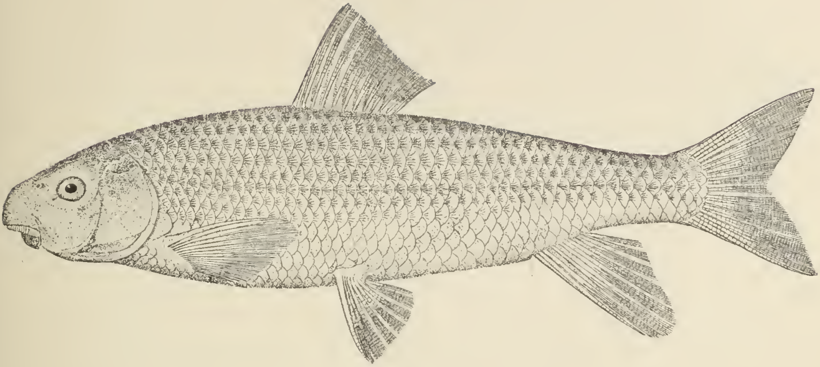


91

89. Erimyzon sucetta. (P. 185.)
90. Minytrema melanops. (P. 187.)
91. Moxostoma congestum. (P. 192.)



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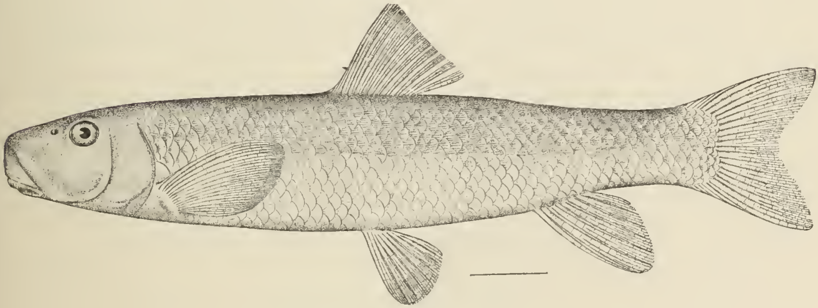
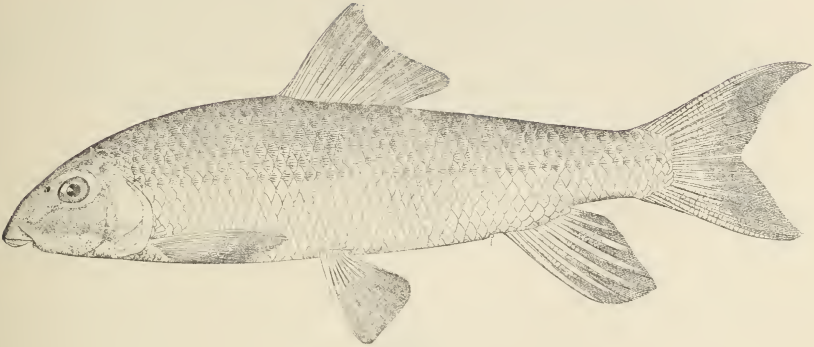


93

92. Moxostoma austrinum. (P. 192.)
93. Moxostoma rupiscartes. (P. 196.)



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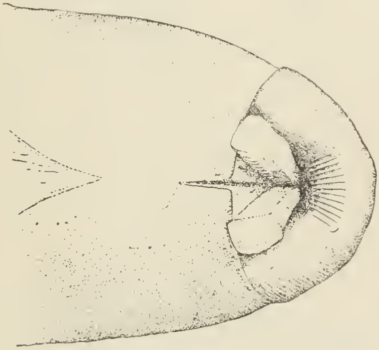
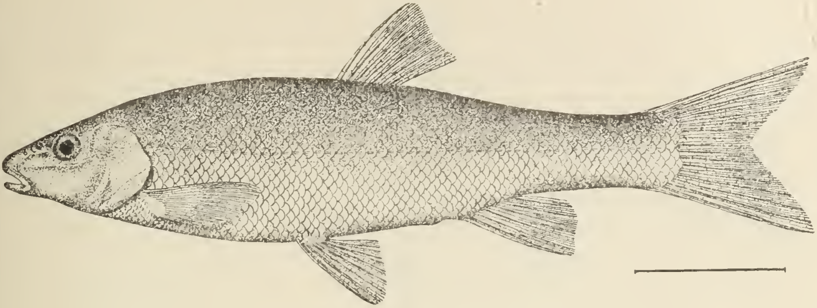


94*a*

94, 94*a*. Lagochila lacera. (P. 199.)



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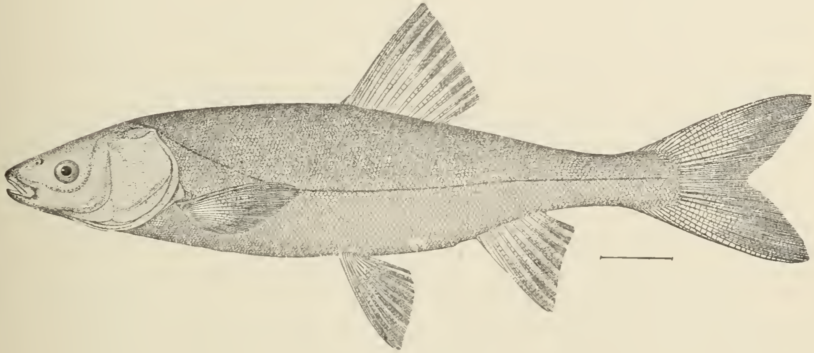

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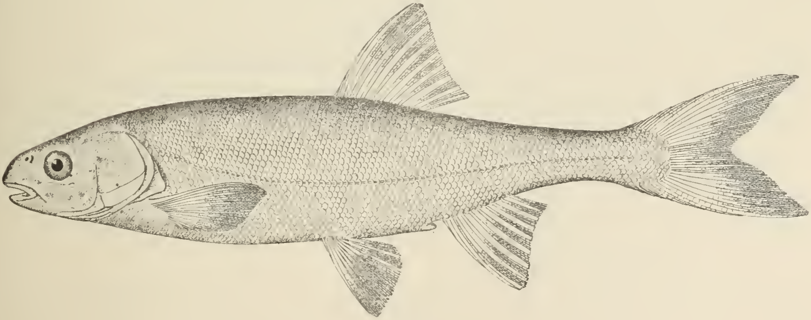
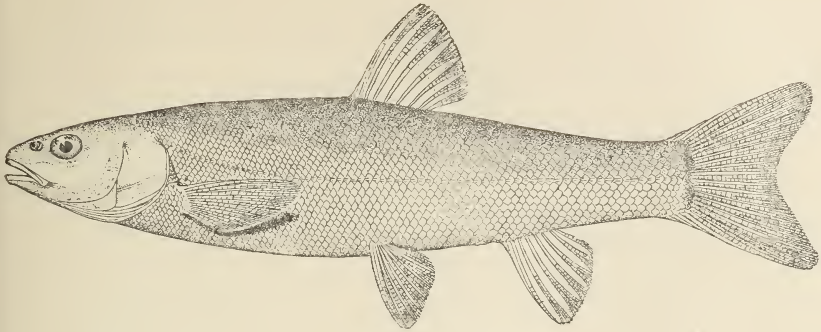


97

95. Campostoma anomalum. (P. 205.)
96. Orthodon microlepidotus. (P. 207.)
97. Acrocheilus alutaceus. (P. 208.)



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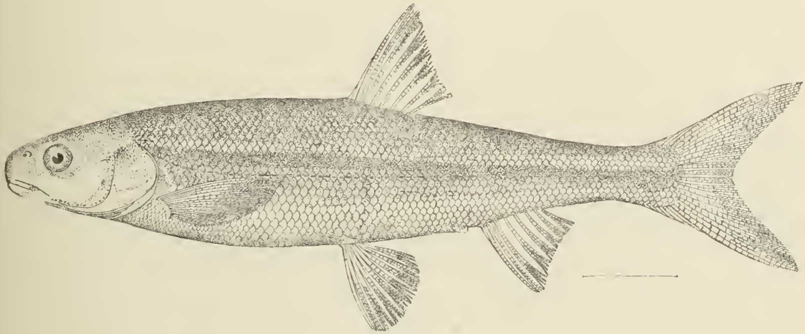

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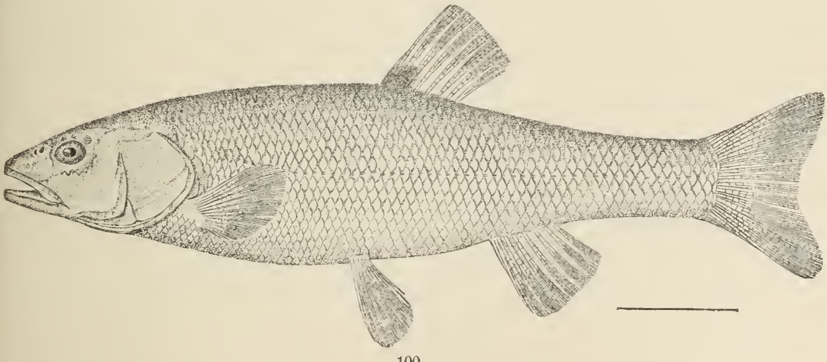
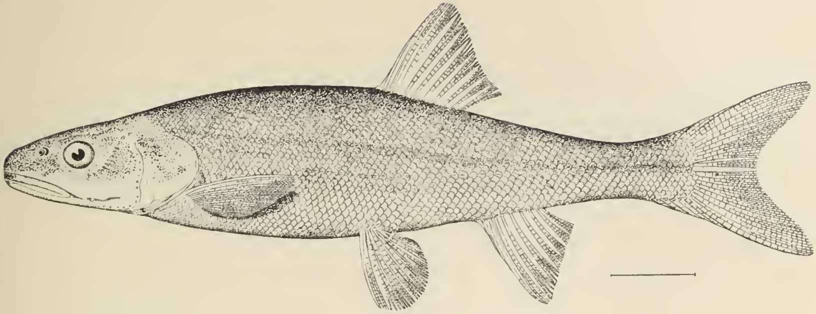


100

98. Algansea dugesi. (P. 211.)
99. Mylocheilus caurinus. (P. 219.)
100. Semotilus atromaculatus. (P. 222.)



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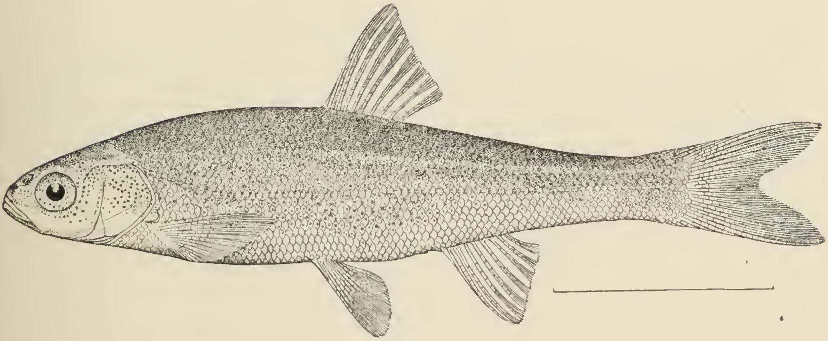

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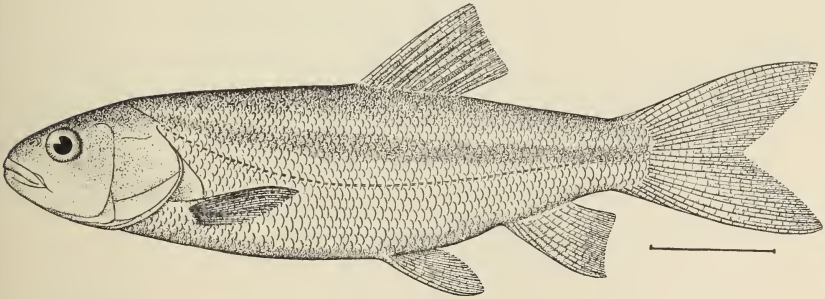
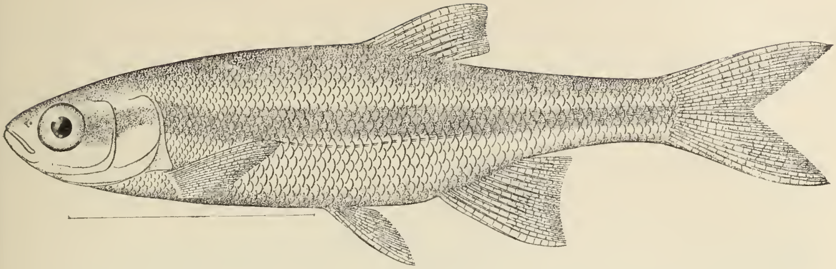


103

101. Ptychocheilus oregonensis. (P. 224.)
102. Leuciscus bicolor. (P. 232.)
103. Leuciscus lineatus. (P. 232.)



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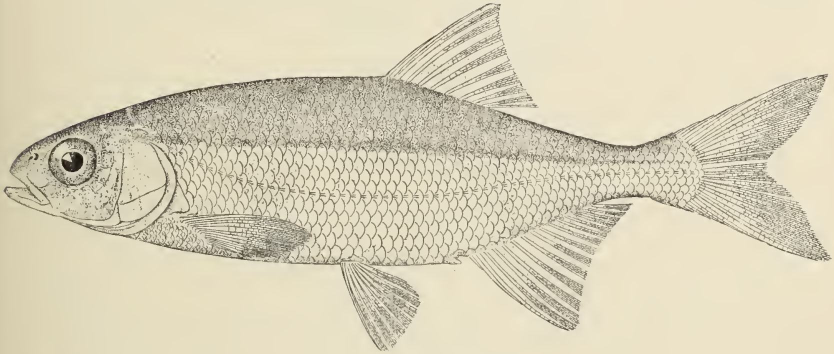

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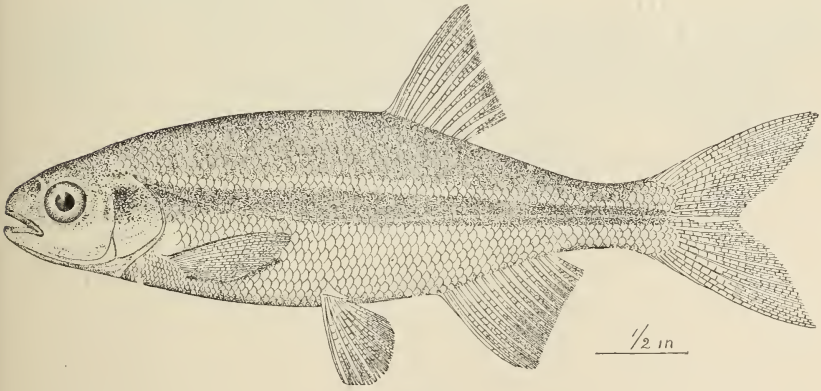
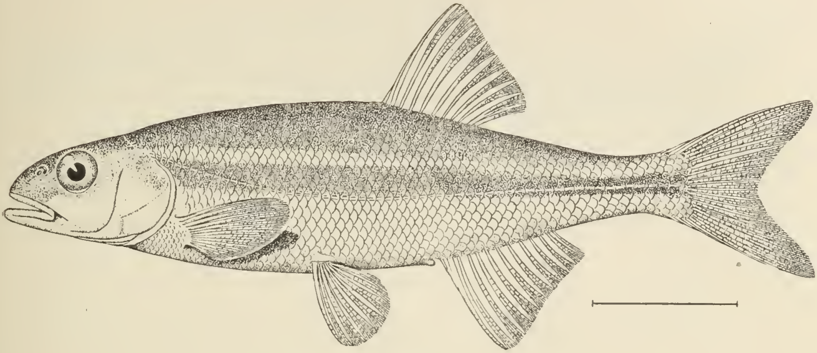


105*a*

104. Leuciscus hydrophilox. (P. 238.)
105. Leuciscus balteatus. (P. 238.)
105*a*. Leuciscus balteatus, from type of Leuciscus gillii. (P. 238.)



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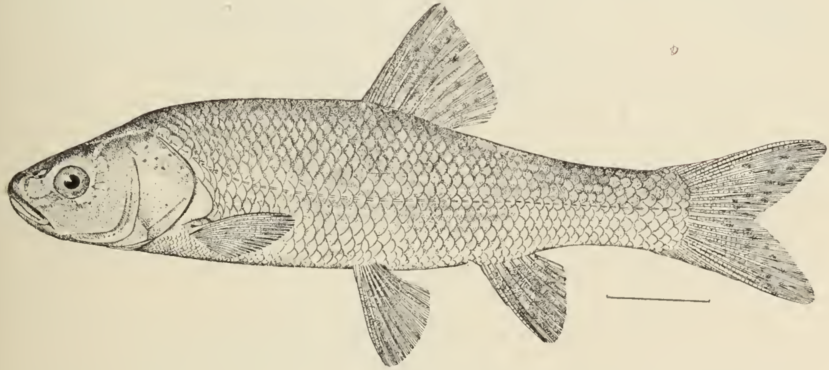
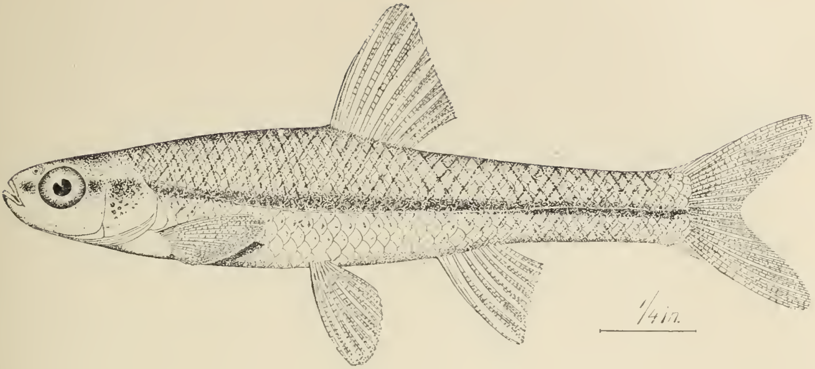


107

106. Leuciscus siuslawi. (P. 2797.)
107. Rutilus bicolor. (P. 244.)



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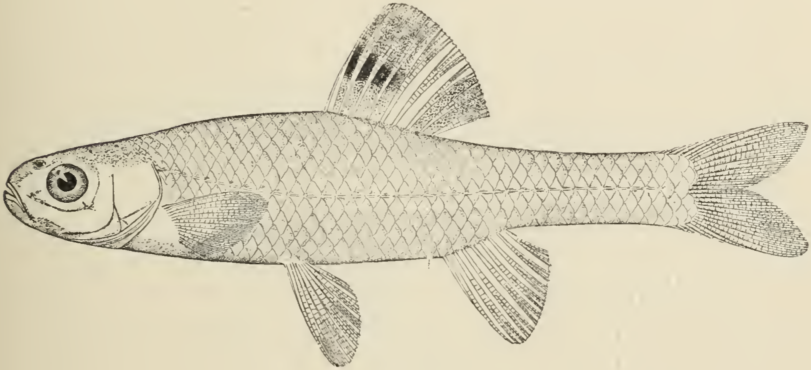

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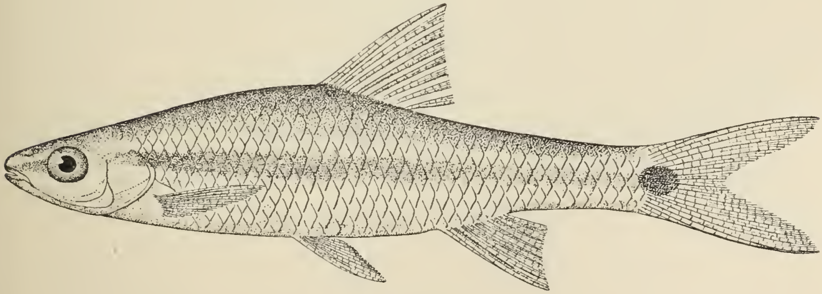
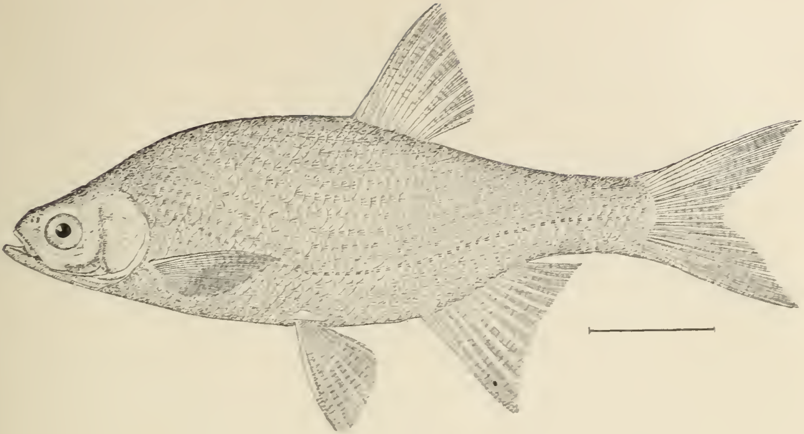


110

108. Opsopœodus osculus. (P. 248.)
109. Opsopœodus emiliæ. (P. 248.)
110. Opsopœodus bollmani. (P. 249.)



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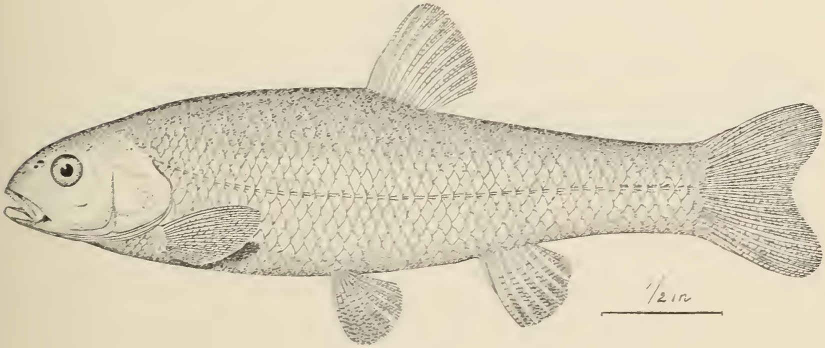

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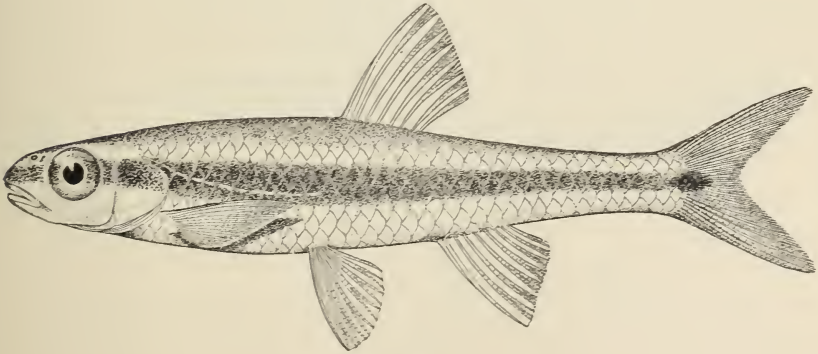
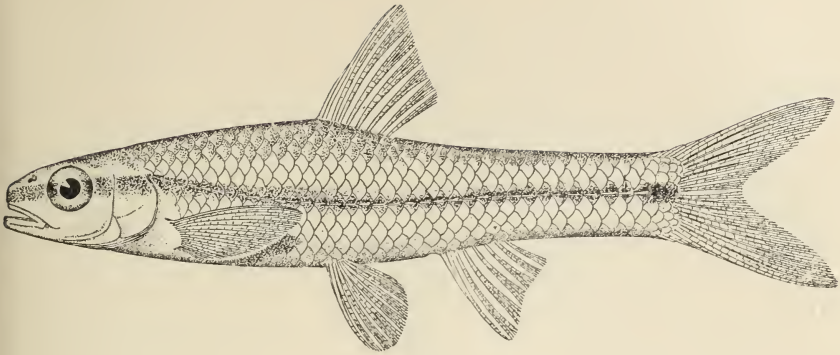


113

111. Abramis crysoleucas. (P. 250.)
112. Notropis aztecus. (P. 258.)
113. Notropis welaka. (P. 2799.)



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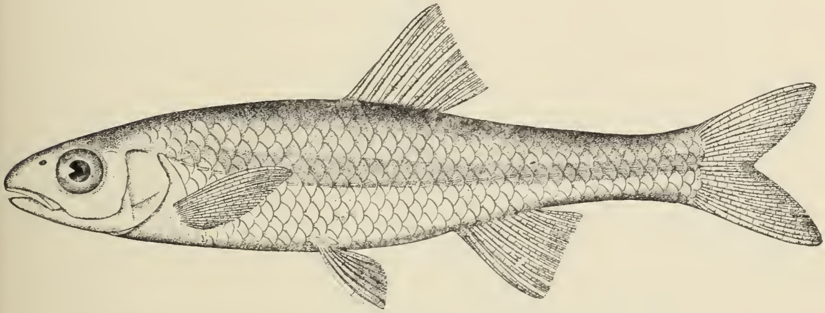

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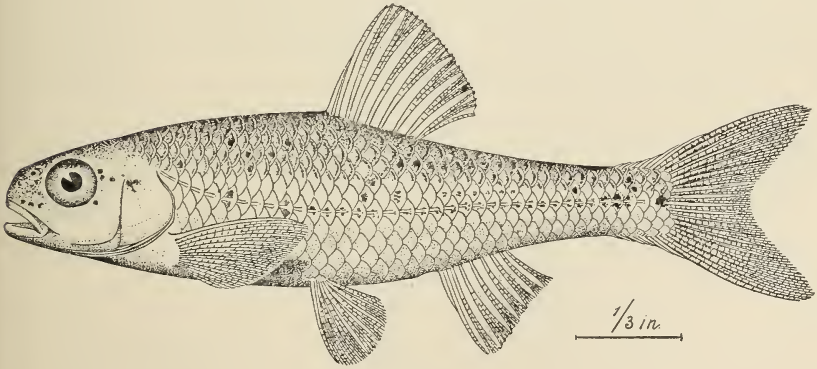
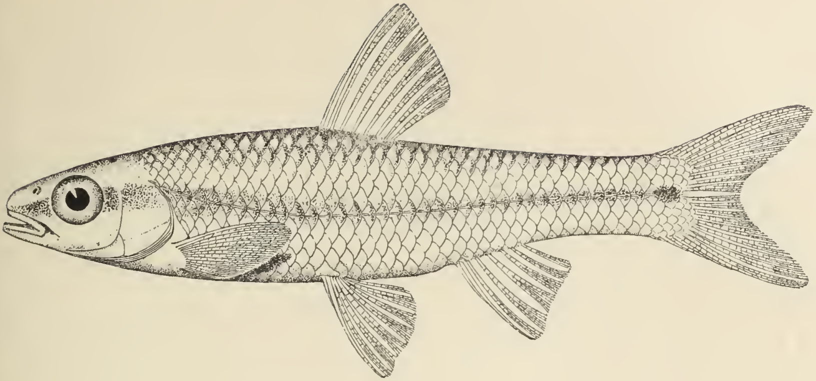


116

114. Notropis cayuga atrocaudalis. (P. 260.)
115. Notropis kanawha. (P. 264.)
116. Notropis chihuahua. (P. 265.)



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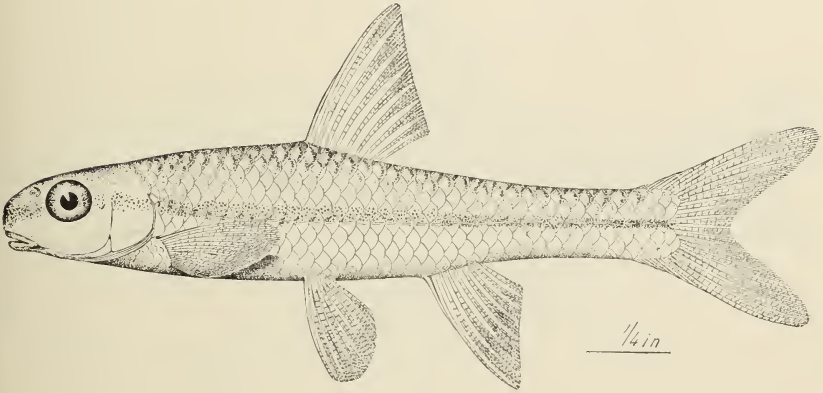

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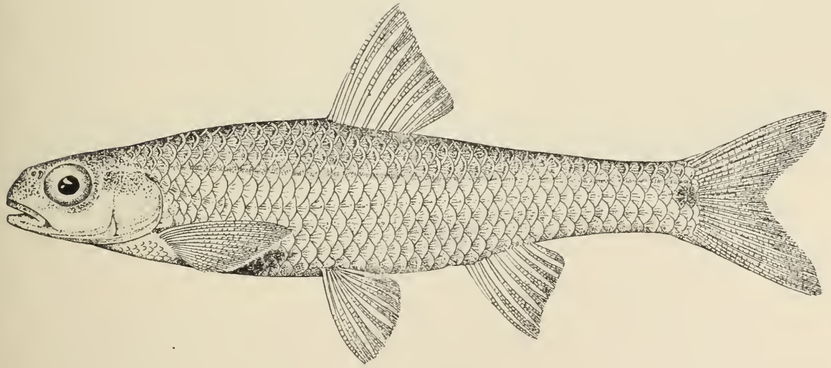
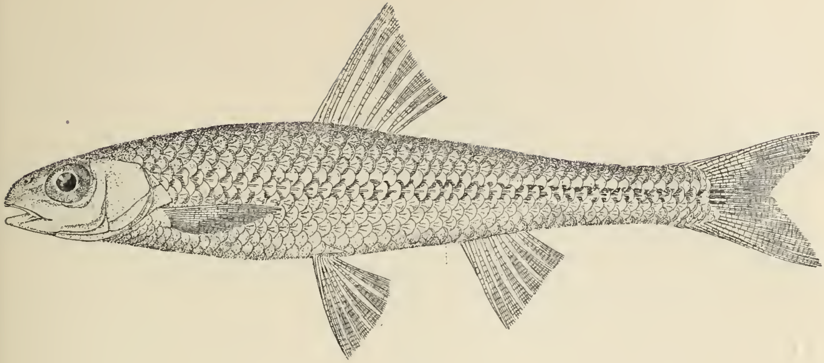


119

117. Notropis nux. (P. 267.)
118. Notropis nocomis. (P. 268.)
119. Notropis hudsonius. (P. 269.)



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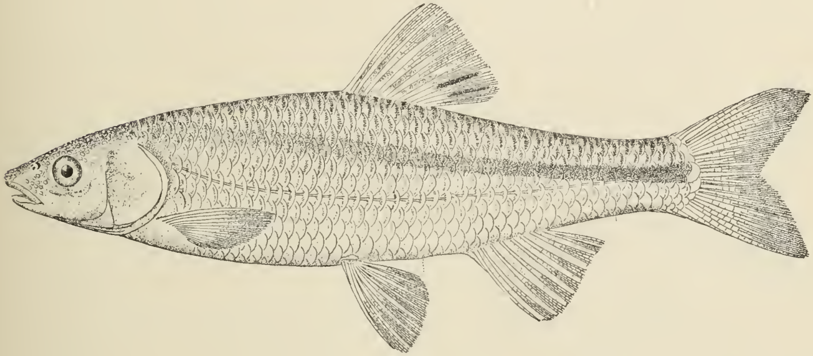

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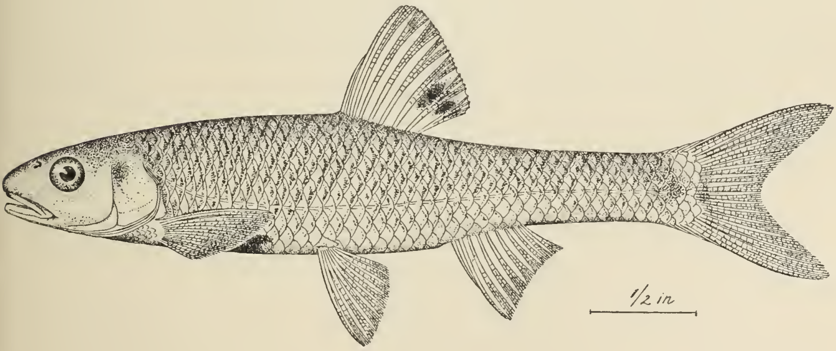
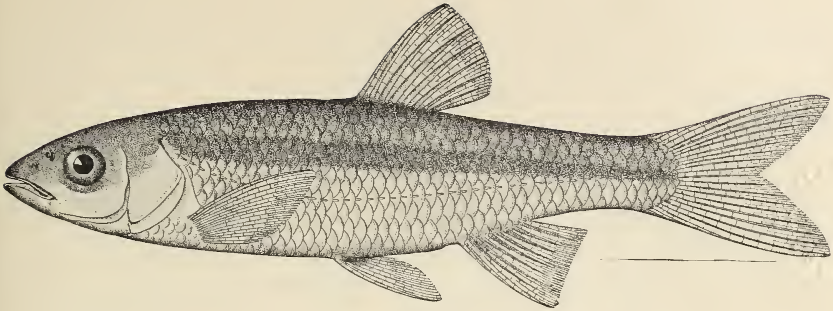


122

120. Notropis hudsonius saludanus. (P. 270.)
121. Notropis whipplii. (P. 278.)
122. Notropis galacturus. (P. 279.)



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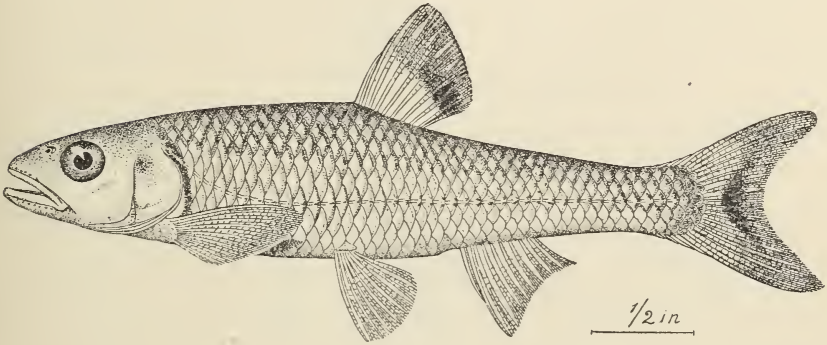

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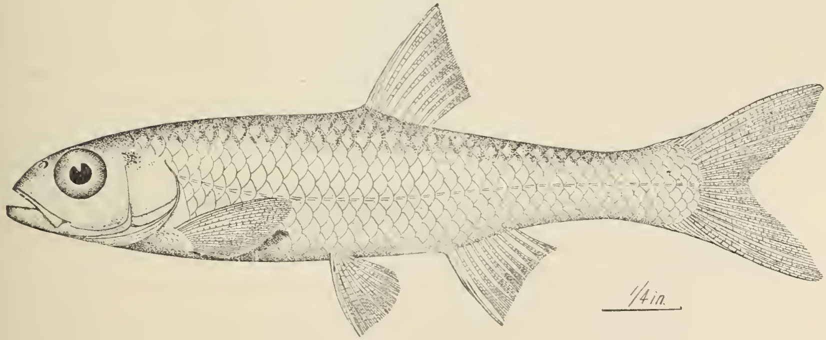
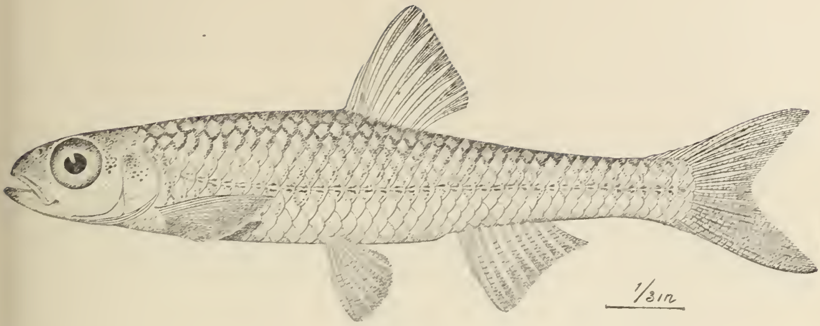


125

123. Notropis macdonaldi. (P. 284.)
124. Notropis coccogenis. (P. 284.)
125. Notropis swaini. (P. 290.)



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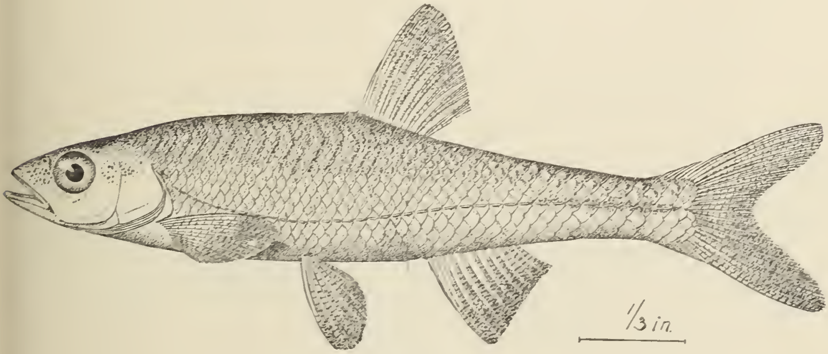

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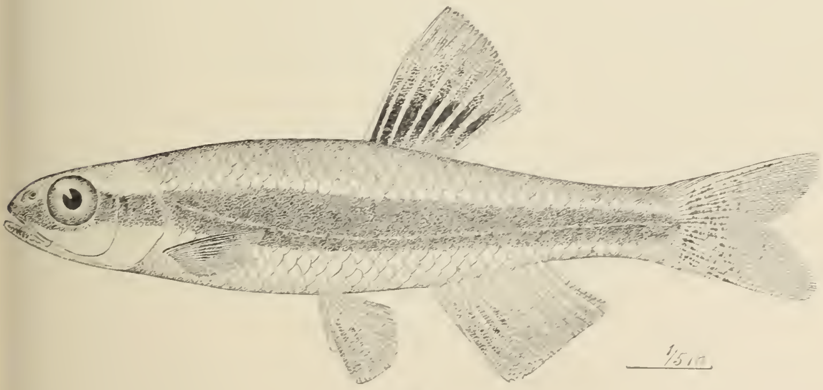
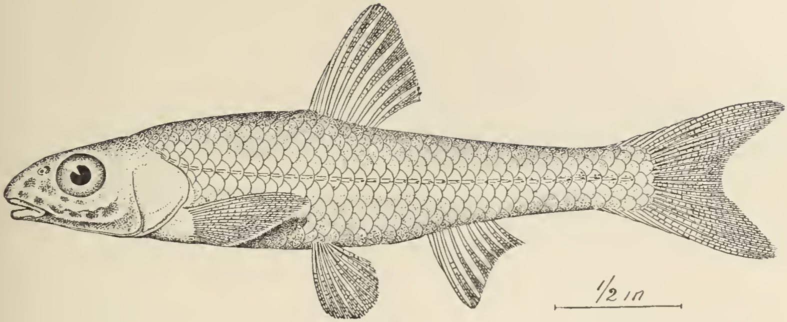


128

126. Notropis telescopus. (P. 292.)
127. Notropis notemigonoides. (P. 292.)
128. Notropis metallicus. (P. 297.)



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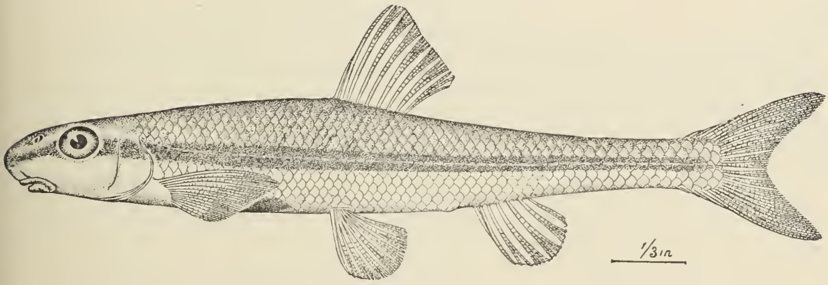

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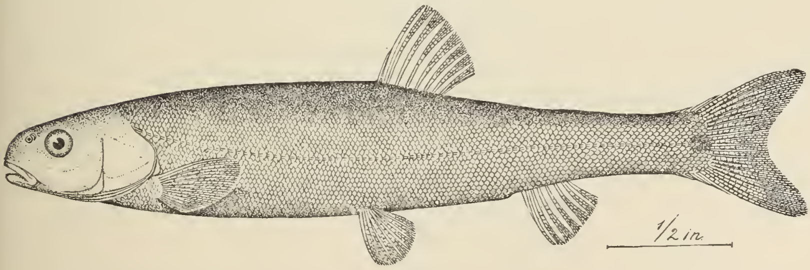
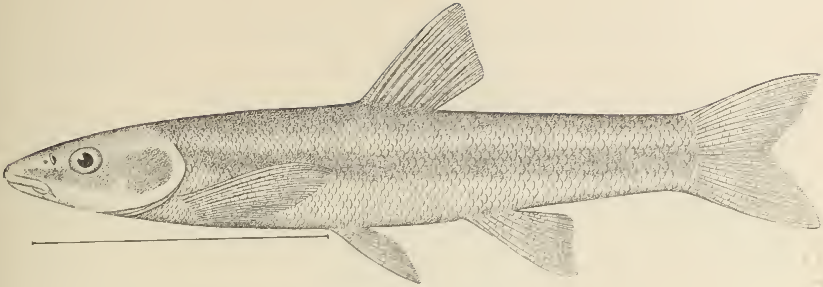


131

129. Ericymba buccata. (P. 302.)
130. Phenacobius uranops. (P. 304.)
131. Evarra eigenmanni. (P. 304.)



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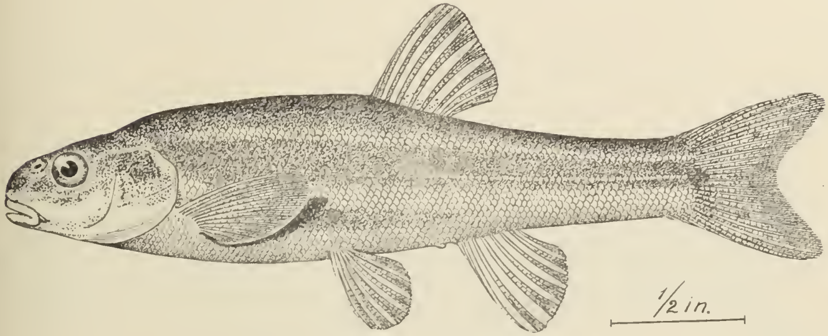

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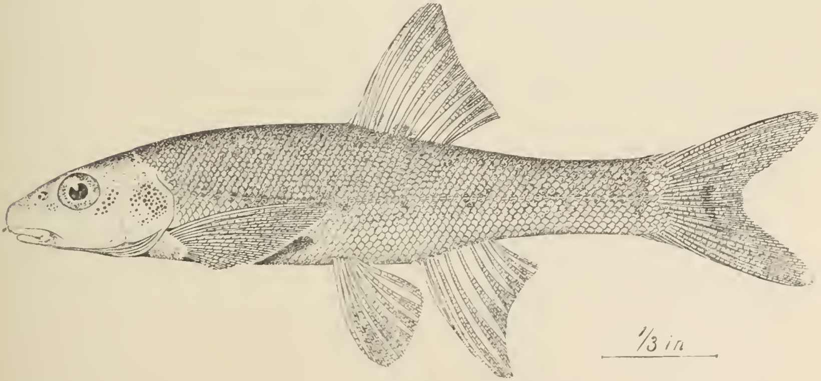
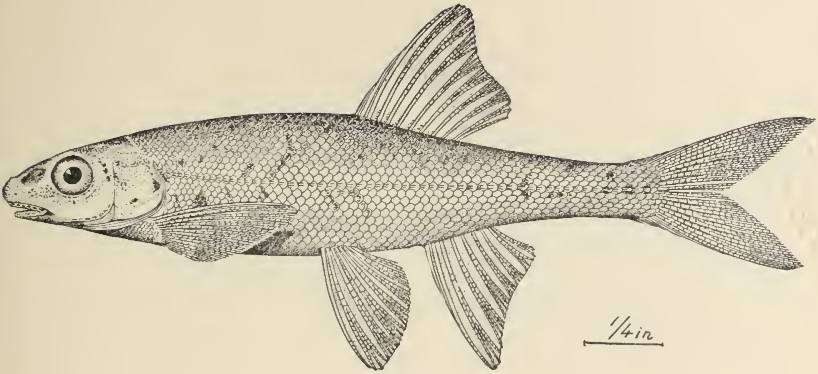


134

132. Rhinichthys dulcis. (P. 306.)
133. Agosia klamathensis. (P. ——.)
134. Agosia umatilla. (P. 313.)



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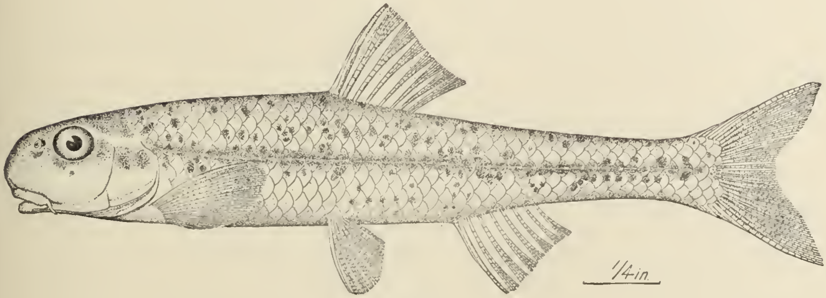

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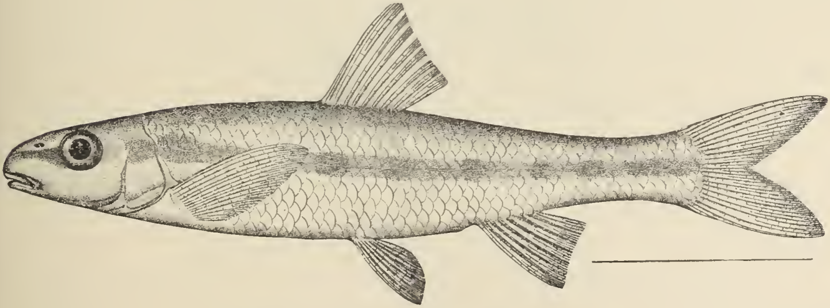
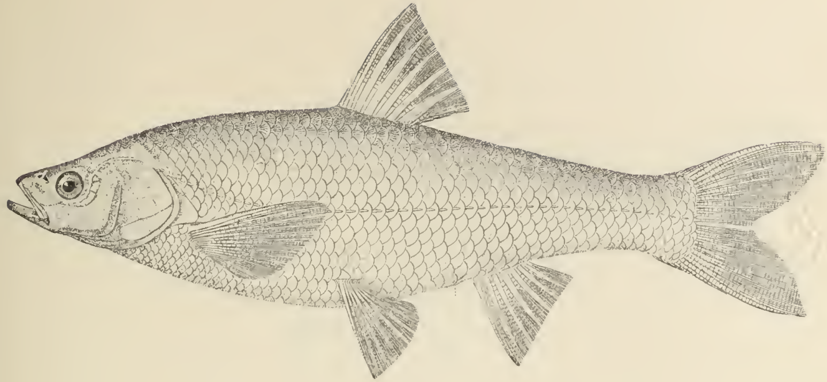


137

135. Agosia falcata. (P. 313.)
136. Hybopsis æstivalis marconis. (P. 316.)
137. Hybopsis watauga. (P. 319.)



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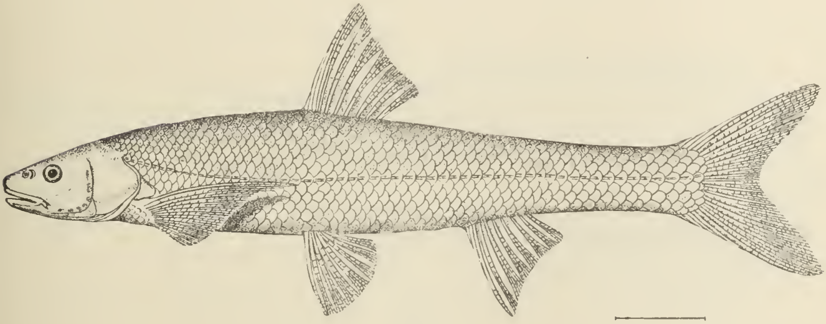

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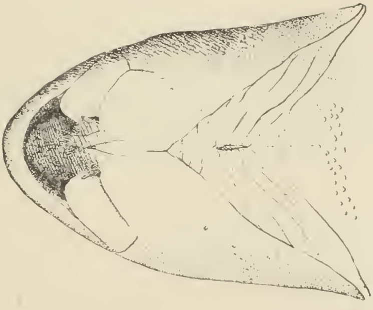
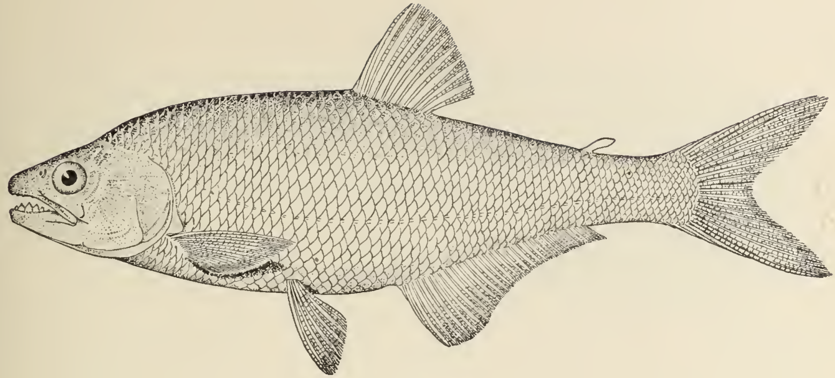


140

138. Hybopsis altus. (P. 321.)
139. Platygobio gracilis. (P. 326.)
140. Exoglossum maxillingua. (P. 327.)



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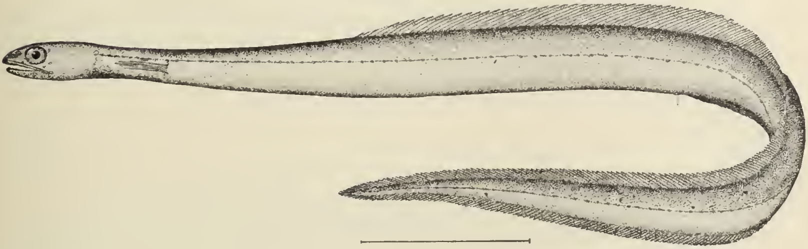

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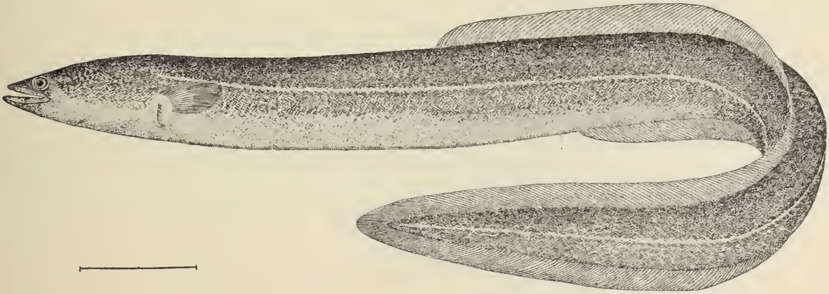
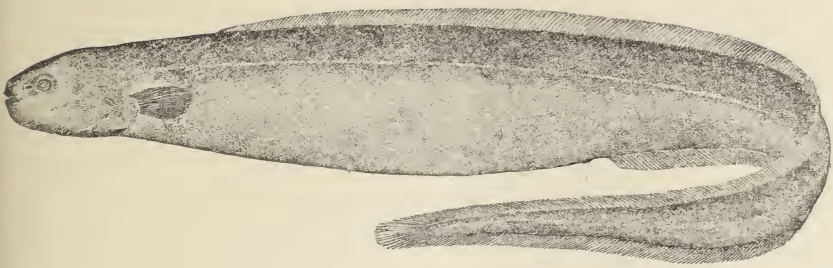


143

141. Brycon dentex. (P. 337.)
142. Derichthys serpentinus. (P. 343.)
143. Anguilla chrysypa. (P. 348.)



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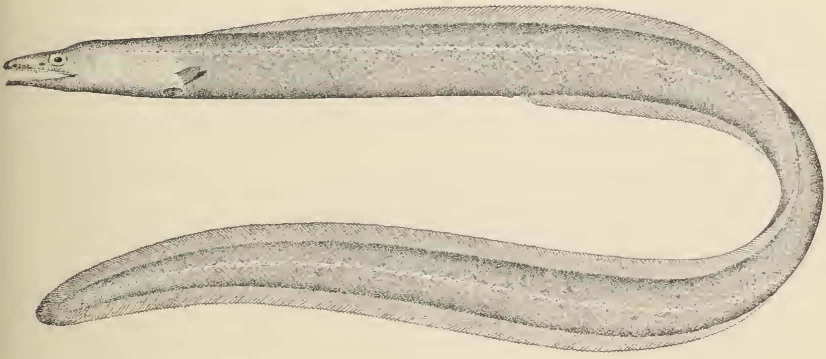

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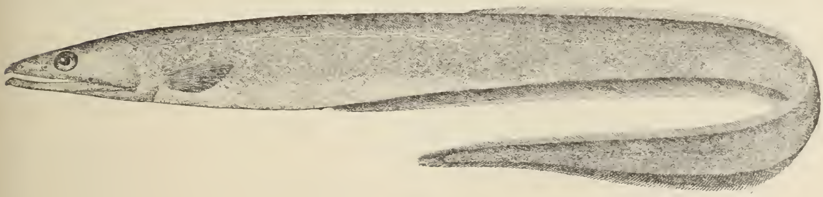
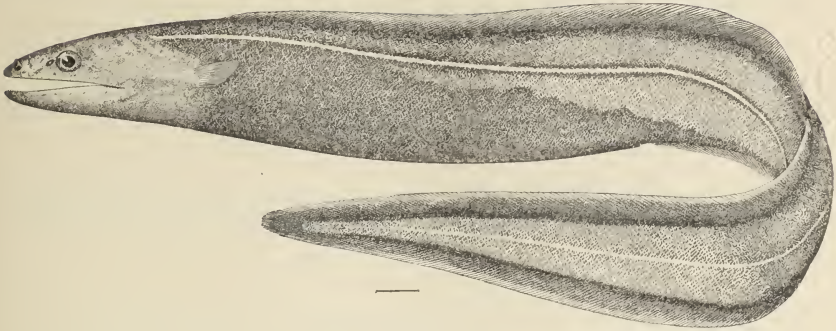


146

144. SIMENCHELYS PARASITICUS. (P. 349.)
145. ILYOPHIS BRUNNEUS. (P. 350.)
146. SYNAPHOBRANCHUS PINNATUS. (P. 351.)



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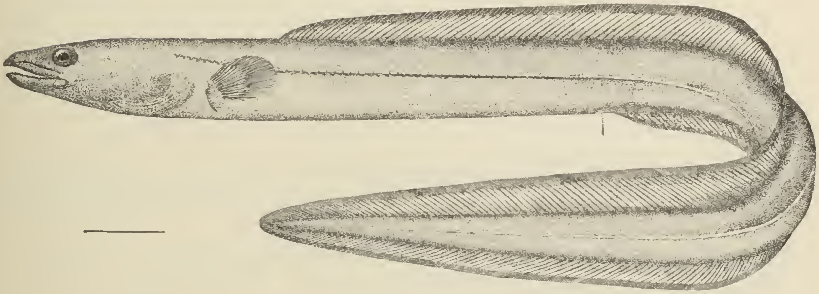

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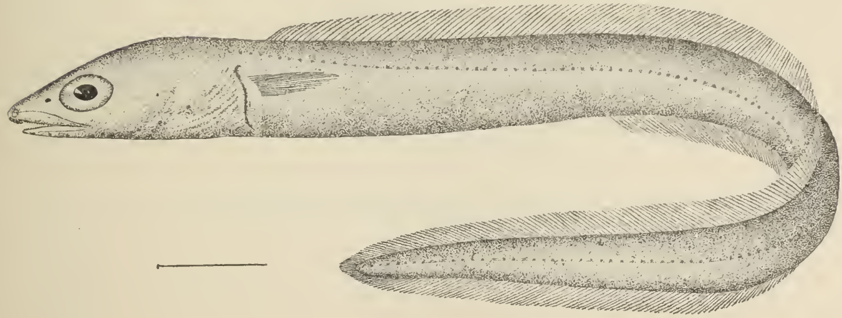
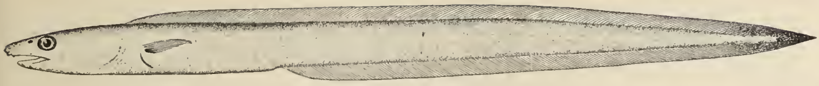


149

147. Histiobranchus infernalis. (P. 352.)
148. Leptocephalus conger. (P. 354.)
149. Leptocephalus caudilimbatus. (P. 355.)



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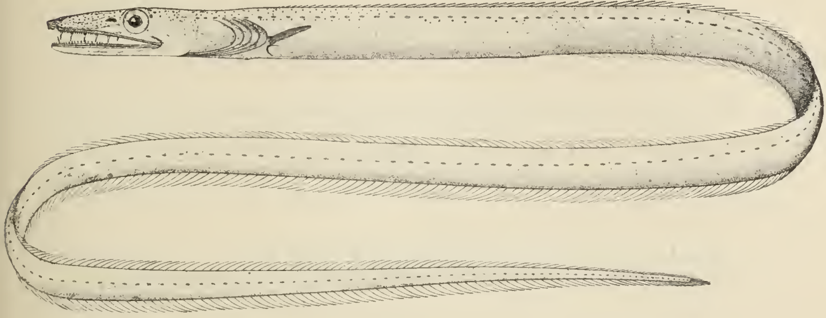

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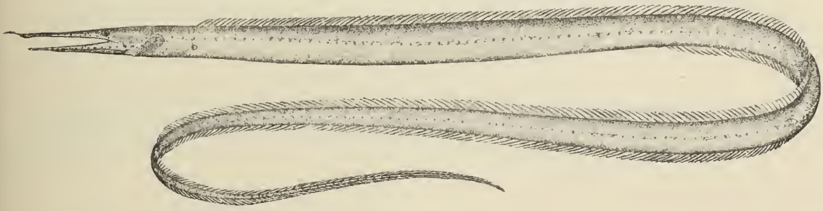

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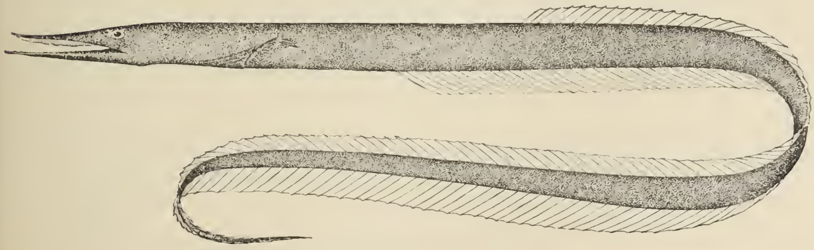
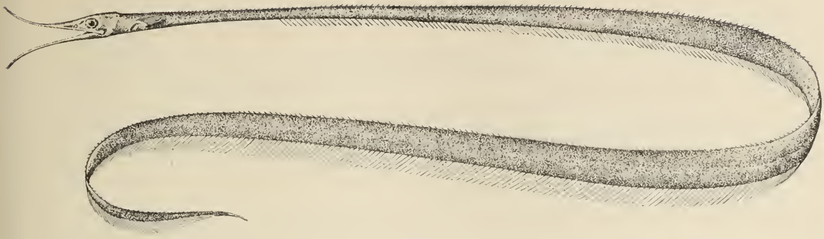


153

150. Congrellus flavus. (P. 357.)
151. Hoplunnis schmidtii. (P. 361.)
152. Venefica procera. (P. 365.)
153. Serrivomer beanii. (P. 367.)



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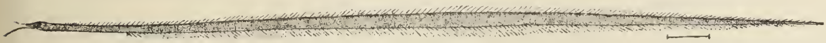
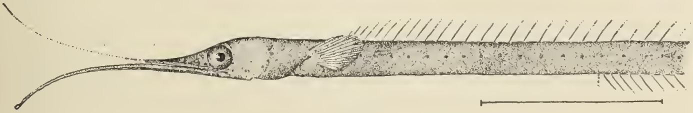
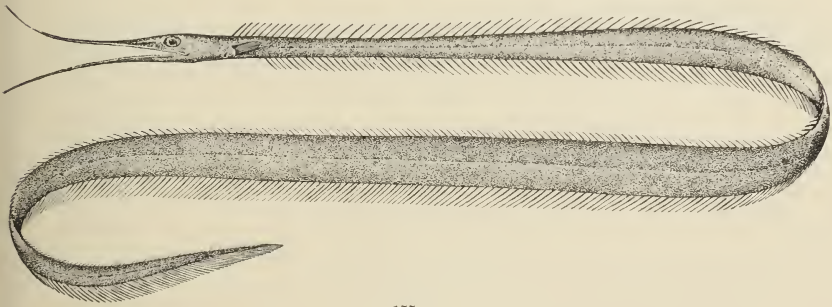


154*a*



154*b*



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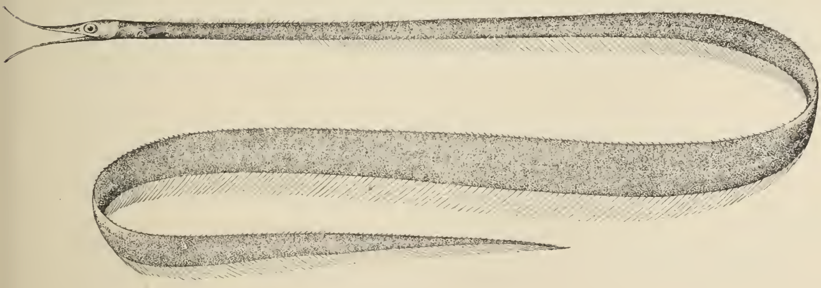
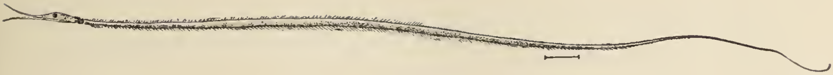


156

154. Avocettina gilli. (Pp. 367, 2801.)
154*a*, 144*b*. Avocettina gilli. (P. 2801.)
155. Labichthys carinatus. (P. 368.)
156. Labichthys elongatus. (P. 369.)



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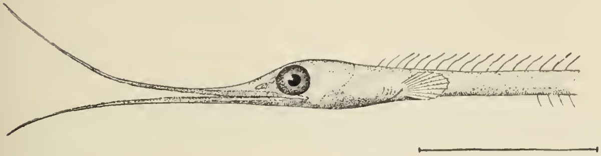
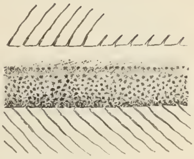
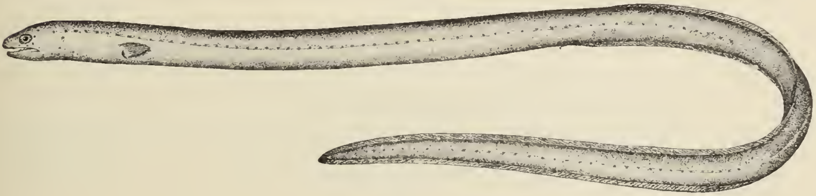


157*a*



157*b*



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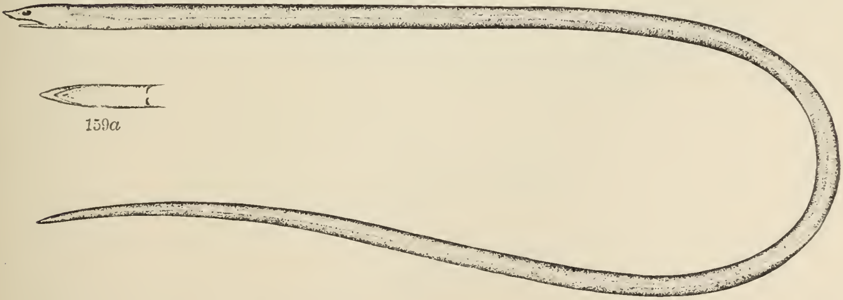
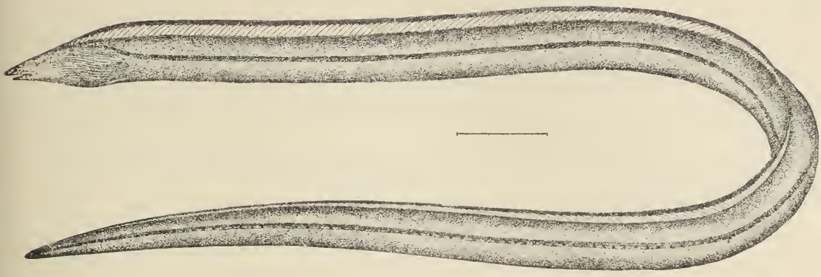


159*a*

159

157, 157*a*, 157*b*. NEMICHTHYS AVOCETTA. (P. 369.)
158. AHLIA EGMONTIS. (P. 370.)
159, 159*a*. VERMA KENDALLI. (P. 375.)



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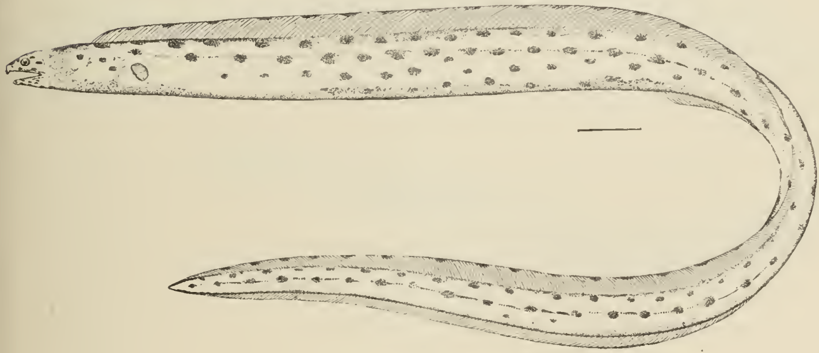
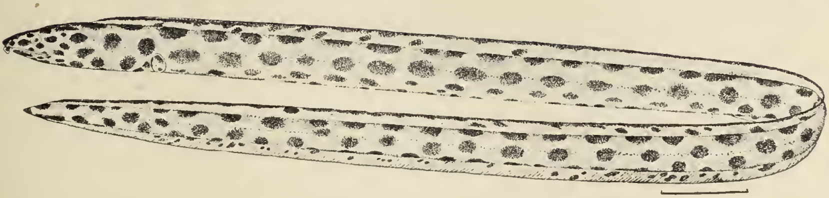


161

160. Letharchus velifer. (P. 375.)
161. Myrichthys tigrinus. (P. 376.)



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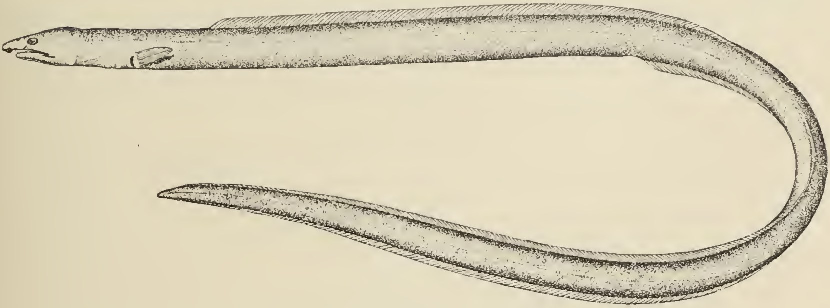
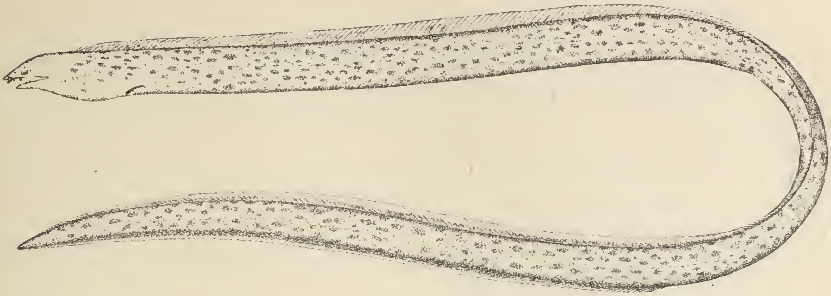


163

162. Myrichthys pantostigmius. (P. 2802.)
163. Pisoodonophis cruentifer. (P. 377.)



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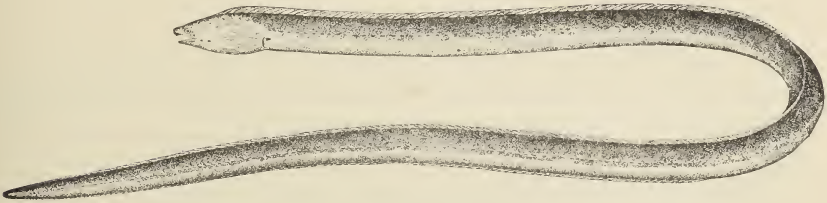

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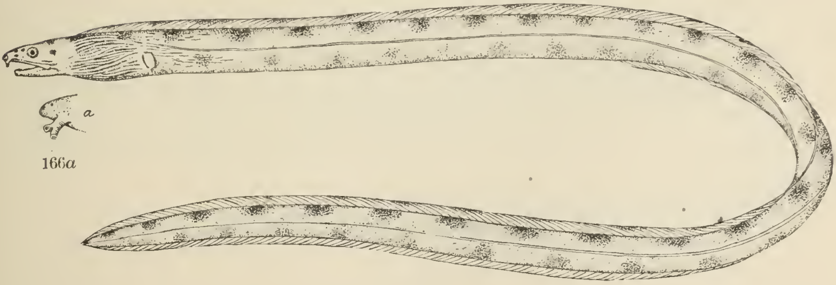
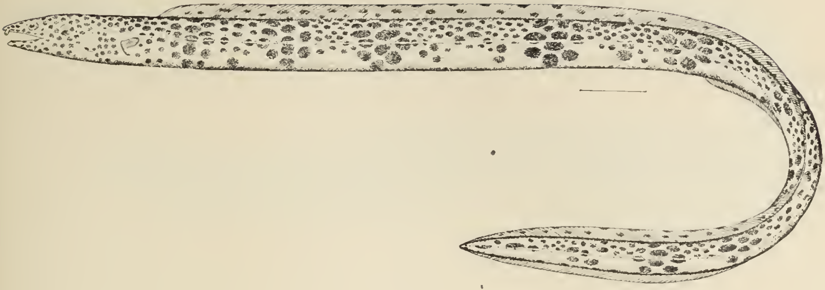


166a

166

164. Calechelys muræna. (P. 378.)
165. Bascanichthys scuticaris. (P. 378.)
166, 166*a*. Bascanichthys peninsulæ. (P. 379.)



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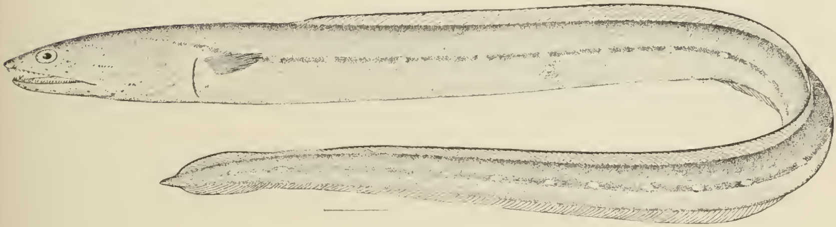

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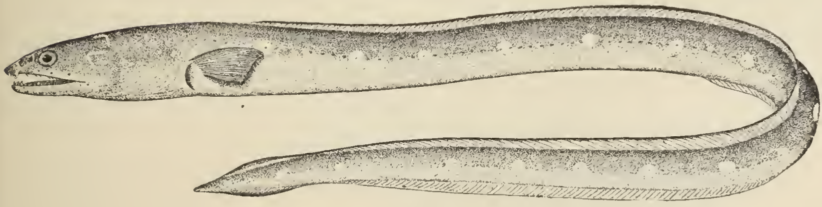
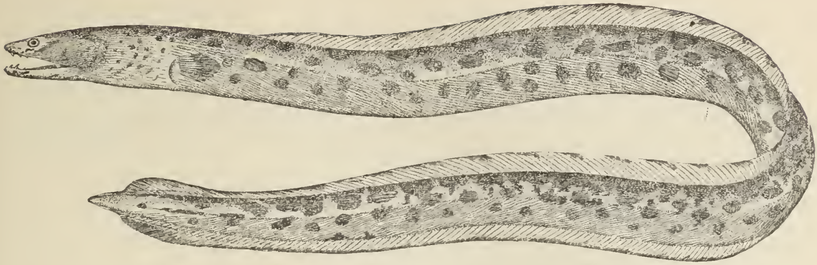


169

167. Qassiremus evionthas. (P. 380.)
168. Ophichthus guttifer. (P. 383.)
169. Ophichthus ocellatus. (P. 383.)



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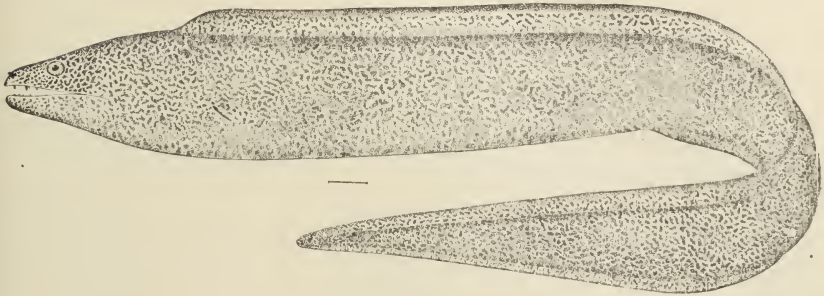

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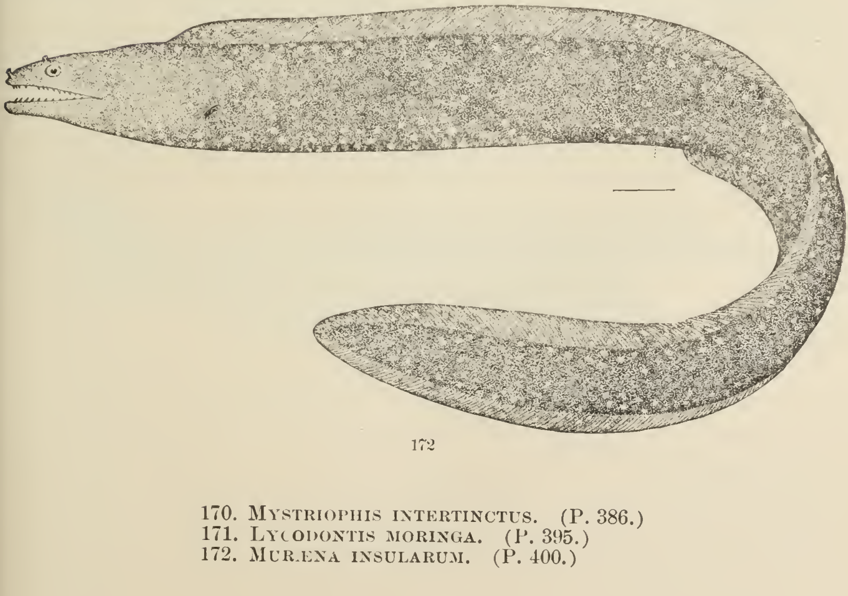
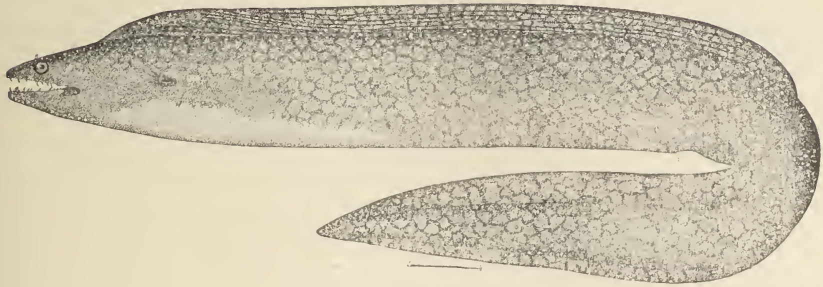


172

170. Mystriophis intertinctus. (P. 386.)
171. Lycodontis moringa. (P. 395.)
172. Muræna insularum. (P. 400.)



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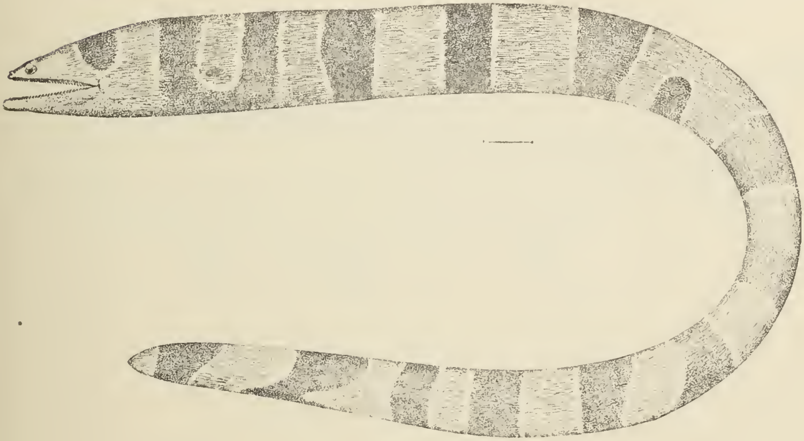

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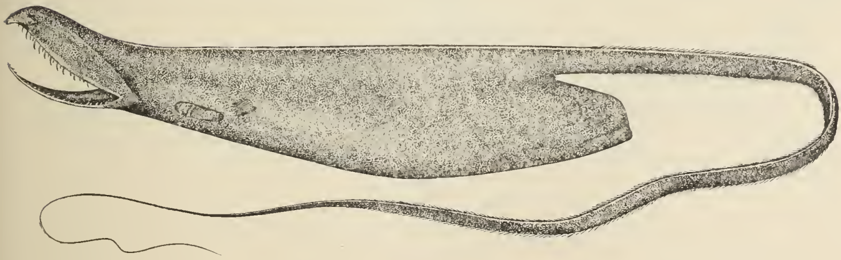
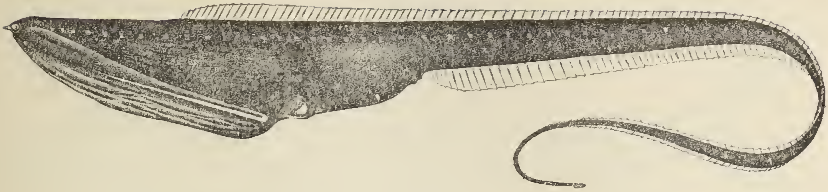


175

173. Muræna retifera. (P. 401.)
174. Channomuræna vittata. (P. 404.)
175. Saccopharynx ampullaceus. (P. 406.)



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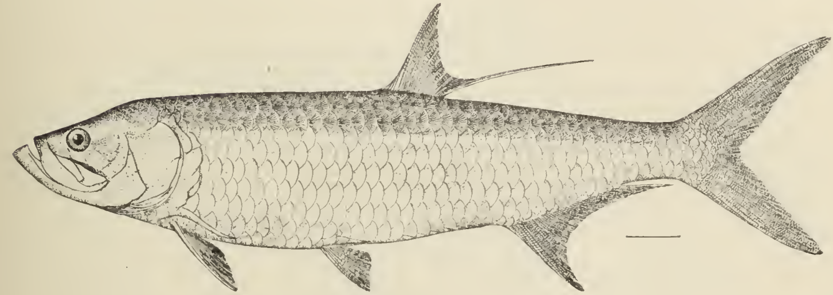

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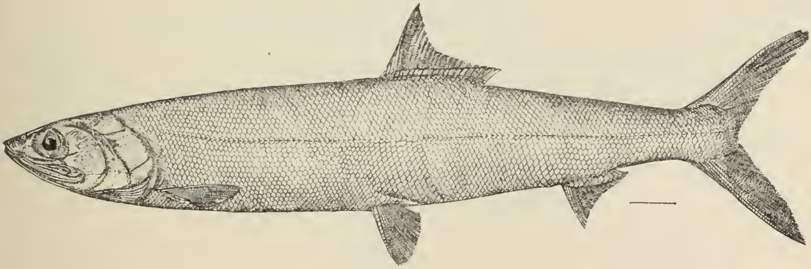
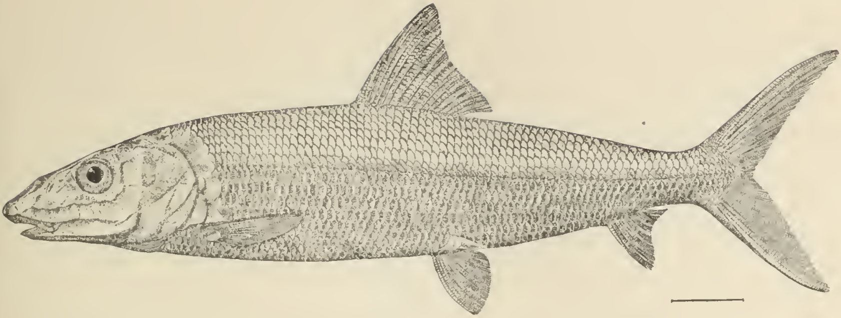


178

176. Gastrostomus bairdii. (P. 406.)
177. Tarpon atlanticus. (P. 409.)
178. Elops saurus. (P. 410.)



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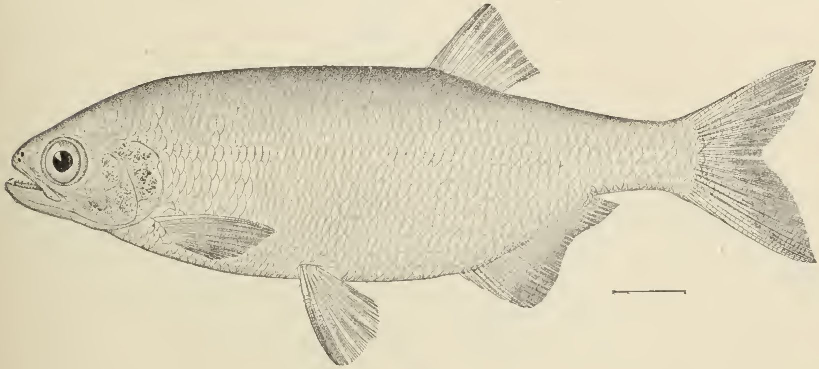

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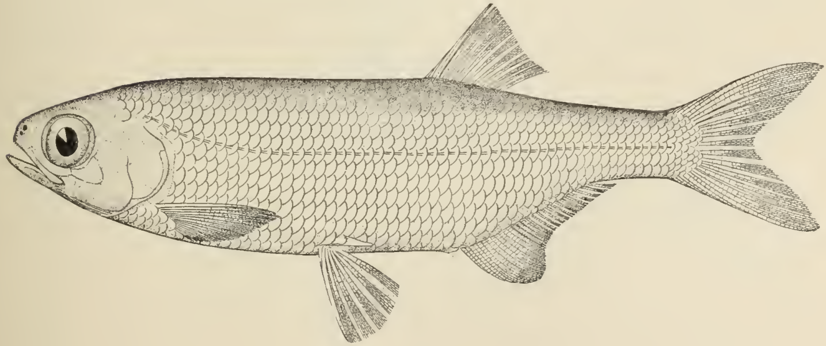
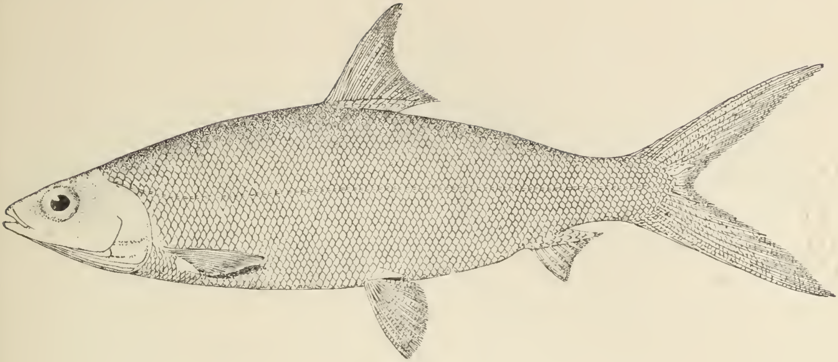


181

179. Albula vulpes. (P. 411.)
180. Hiodon tergisus. (P. 413.)
181. Hiodon selenops. (P. 414.)



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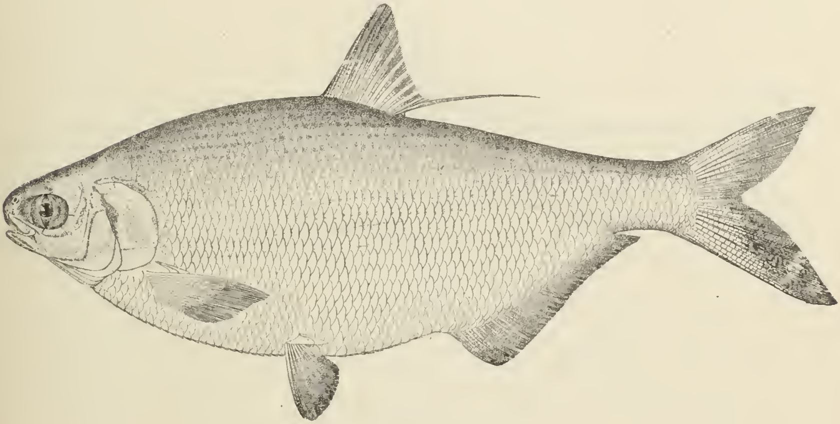

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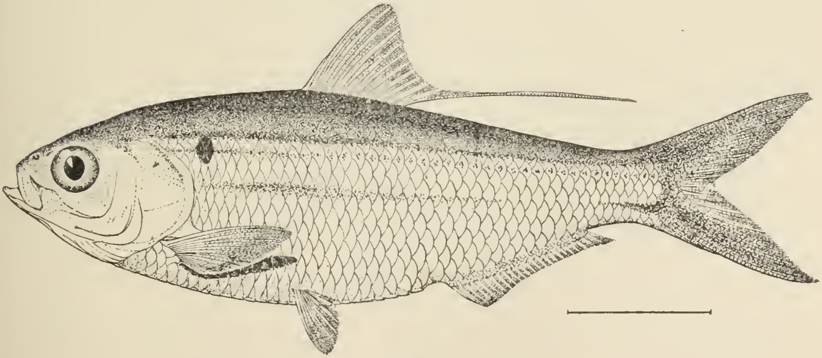

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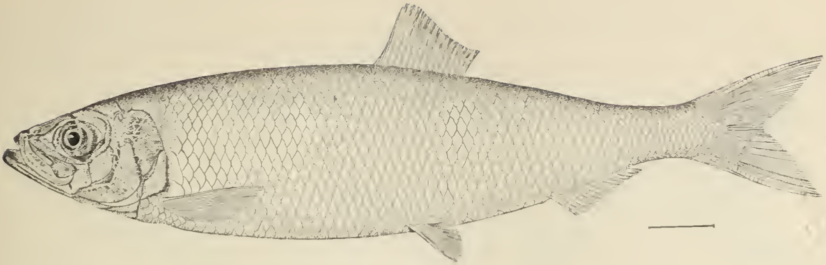
182. Chanos chanos. (P. 414.)
183. Dorosoma cepedianum. (P. 416.)
184. Signalosa atchafalayæ. (P. 2809.)



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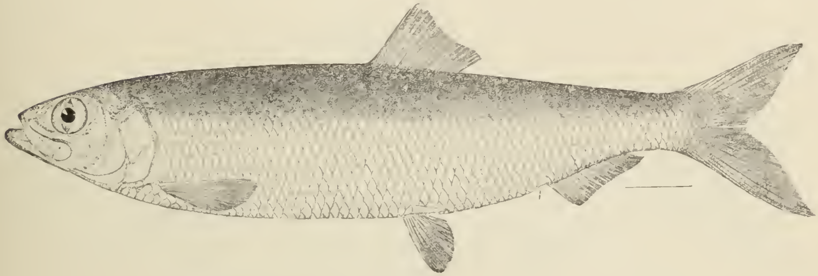

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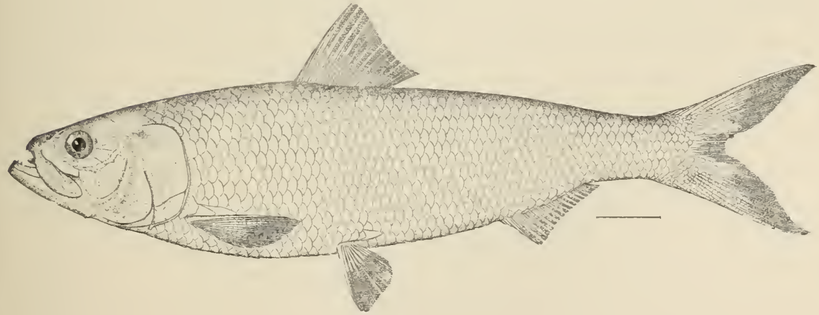
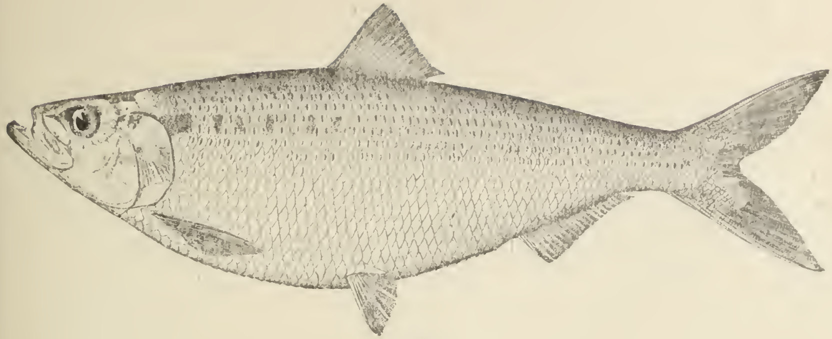


187

185. Clupea harengus. (P. 421.)
186. Clupea pallasii. (P. 422.)
187. Pomolobus chrysochloris. (P. 425.)



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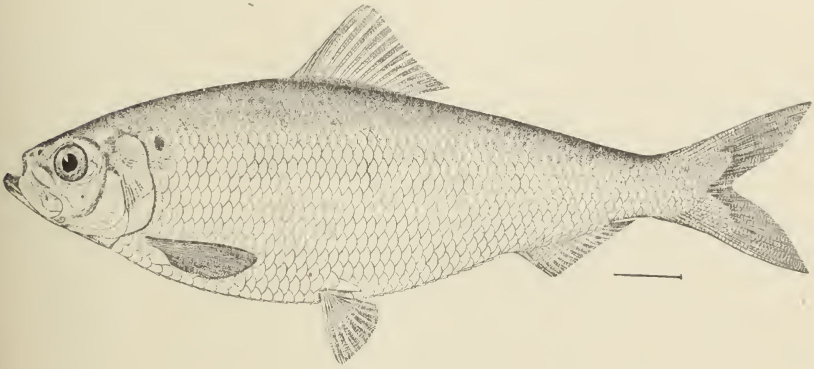

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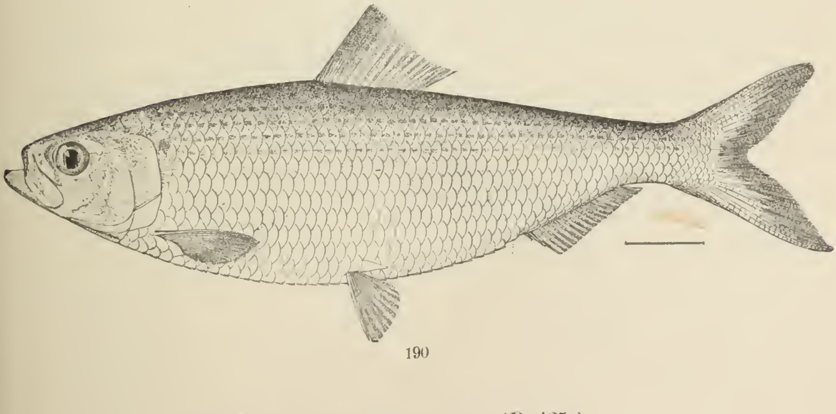
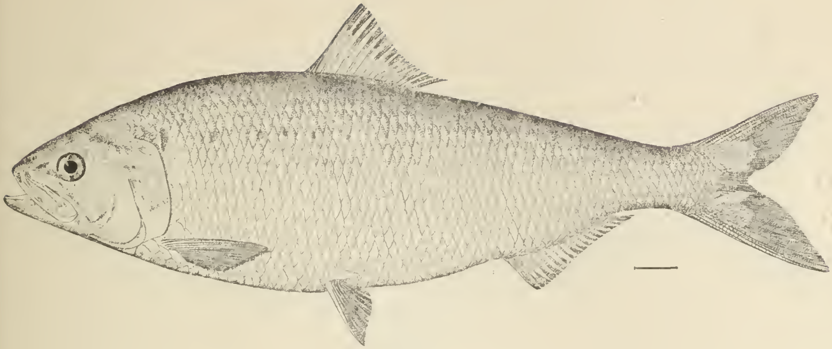


190

188. Pomolobus mediocris. (P. 425.)
189. Pomolobus pseudoharengus. (P. 426.)
190. Pomolobus æstivalis. (P. 426.)



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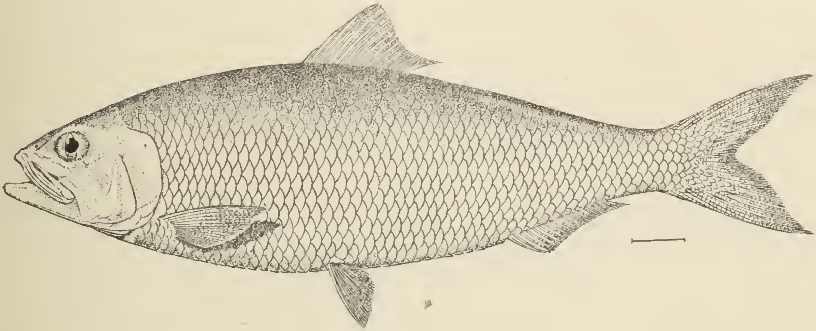

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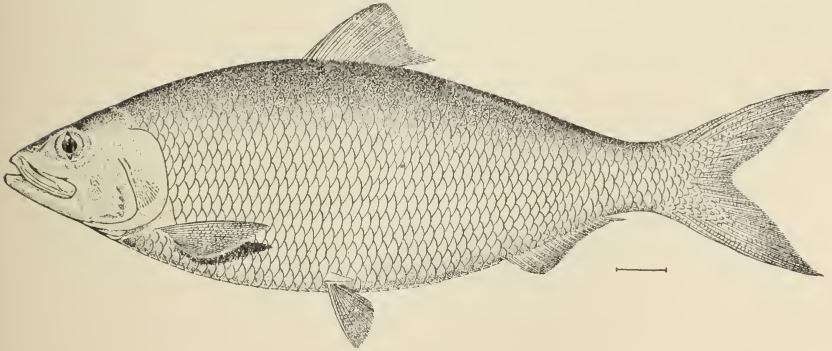
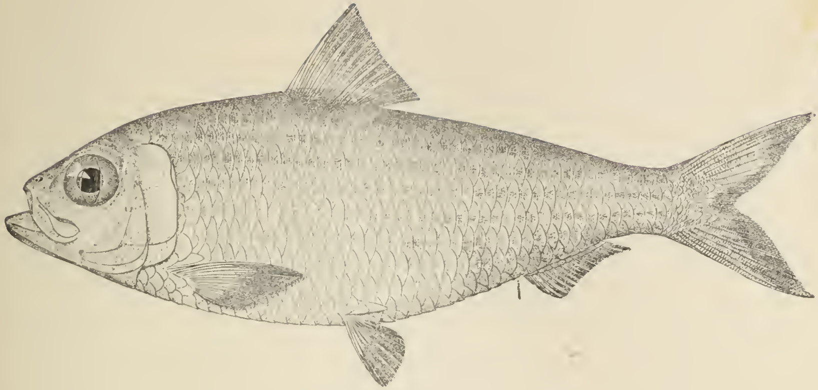


192*a*

191. Alosa sapidissima. (P. 427.)
192. Alosa alabamæ; male. (P. 2810.)
192*a*. Alosa alabamæ; female. (P. 2810.)



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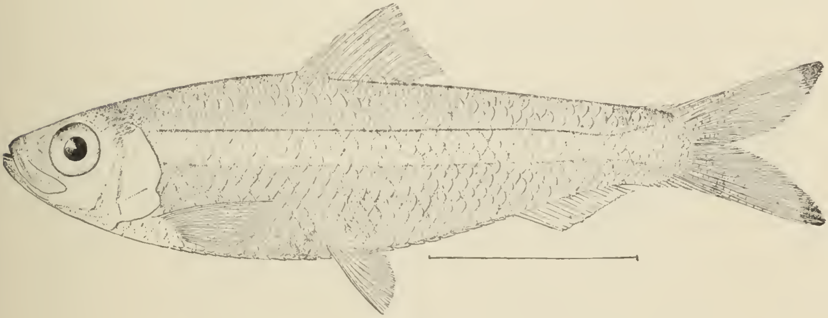

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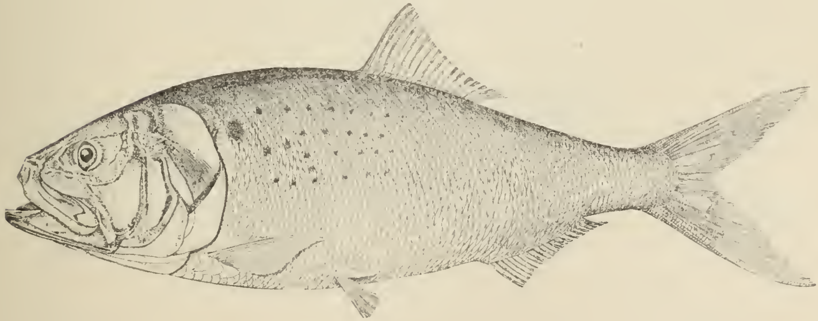
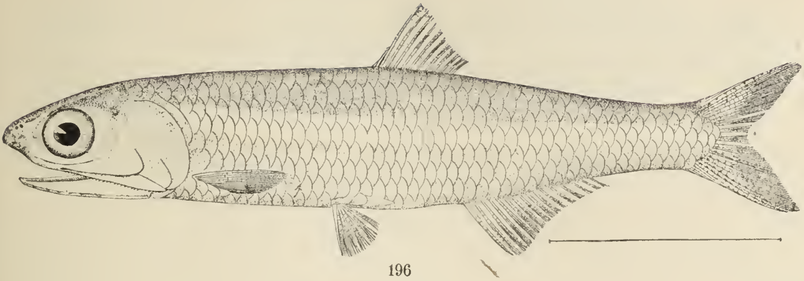


195

193. Sardinella sardina. (P. 430.)
194. Sardinella stolifera. (P. 431.)
195. Brevoortia tyrannus. (P. 433.)



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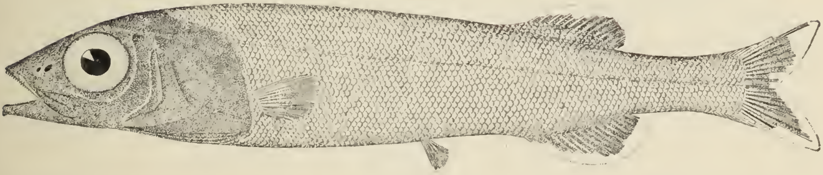

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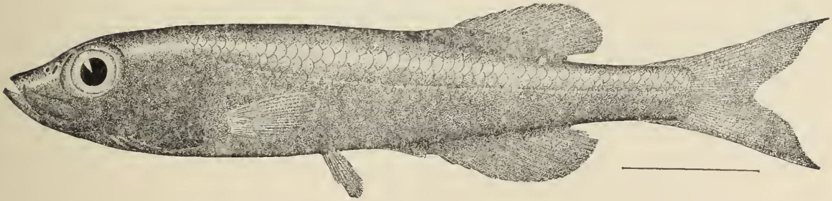
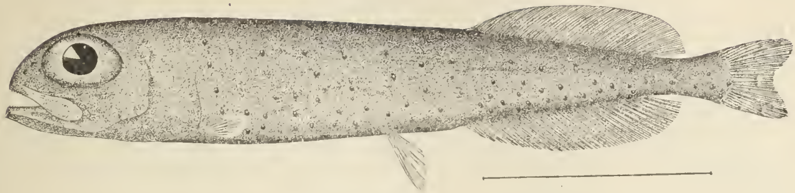


198

196. STOLEPHORUS PERTHECATUS. (P. 442.)
197. ALEPOCEPHALUS AGASSIZII. (P. 453.)
198. TALISMANIA ANTILLARUM. (P. 455.)



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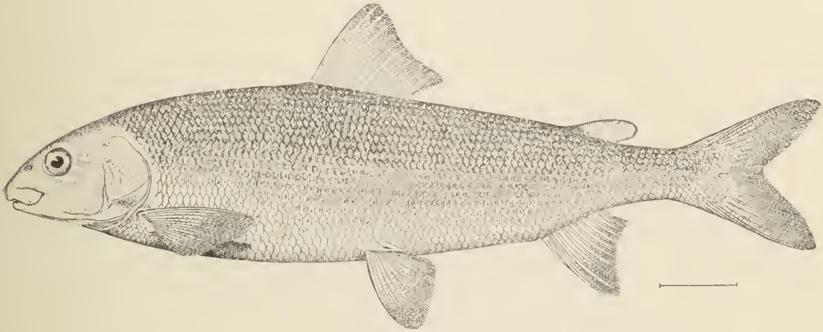

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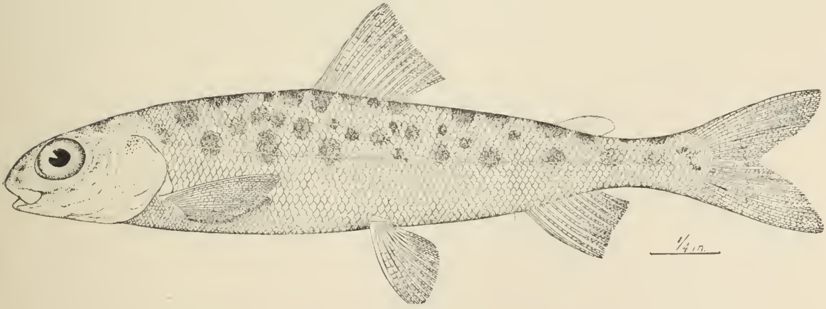
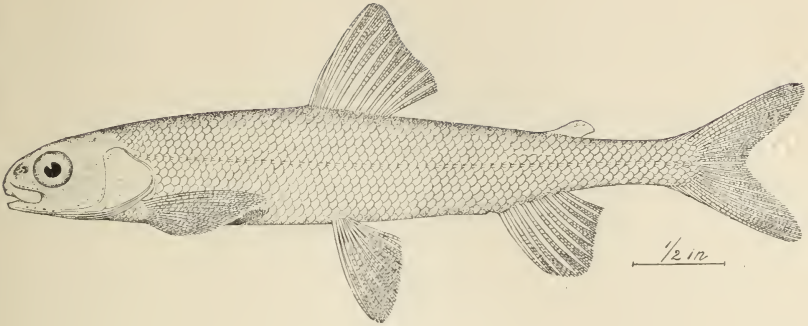


200*a*

199. Aleposomus copei. (P. 459.)
200. Coregonus williamsoni. (P. 463.)
200*a*. Coregonus williamsoni; young. (P. 463.)



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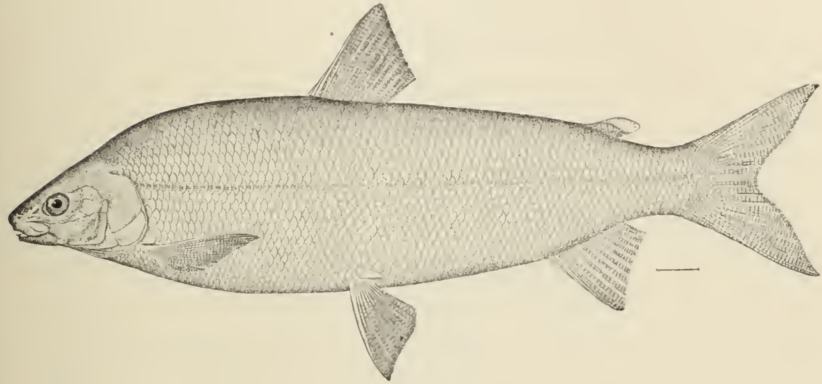

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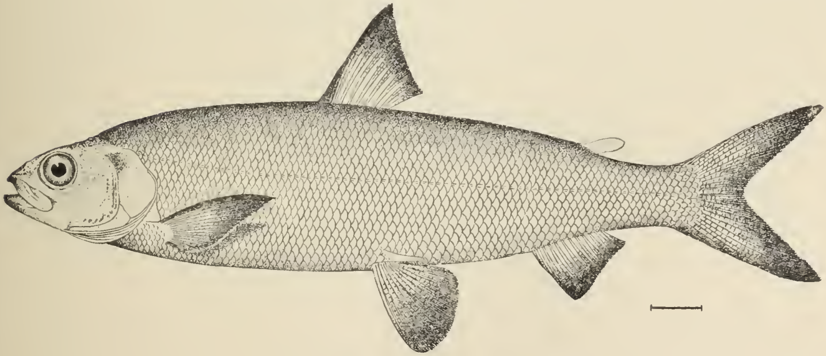
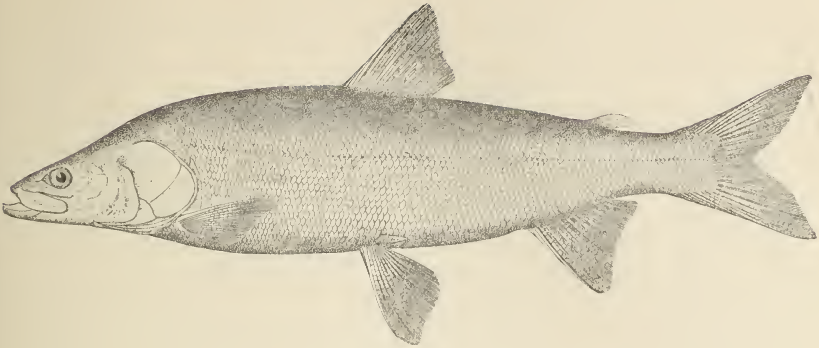


203

201. Coregonus coulterii. (P. 462.)
202. Coregonus clupeiformis. (P. 465.)
203. Argyrosomus nigripinnis. (P. 472.)



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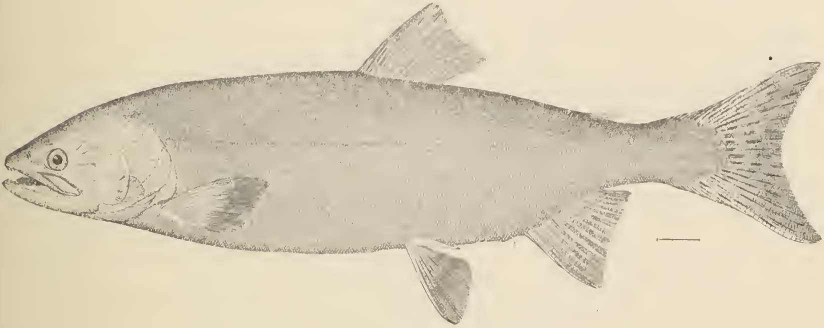

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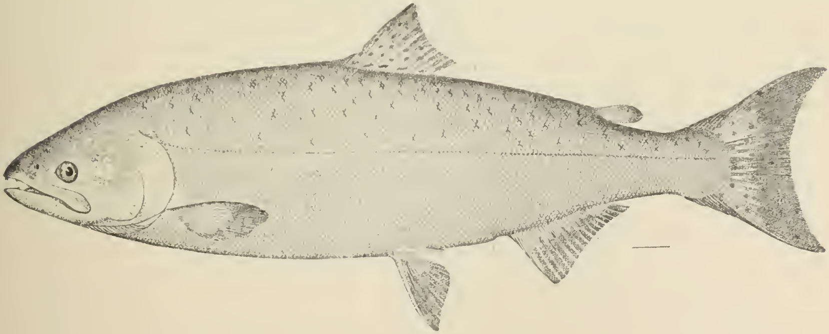
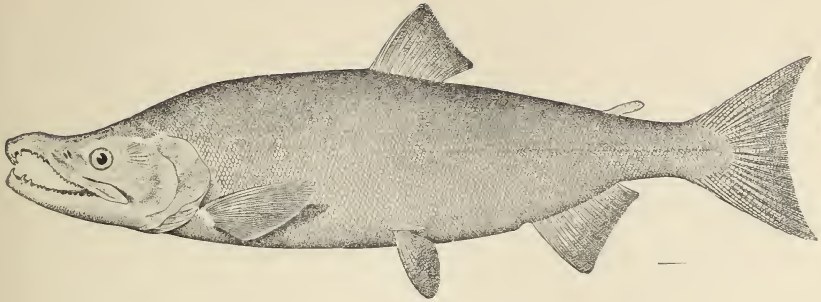


206

204. Stenodus mackenzii. (P. 474.)
205. Oncorhynchus gorbuscha. (P. 478.)
206. Oncorhynchus tschawytscha. (P. 479.)



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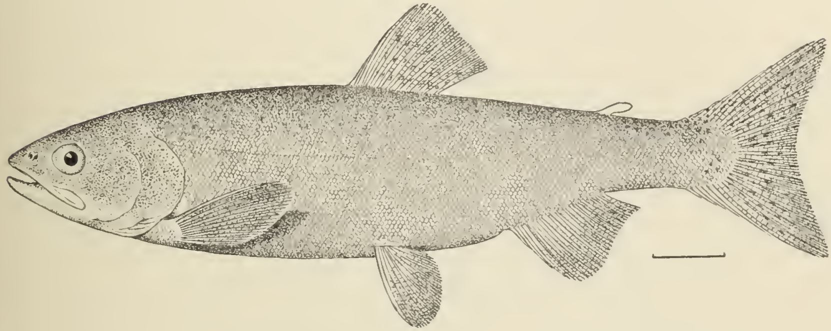
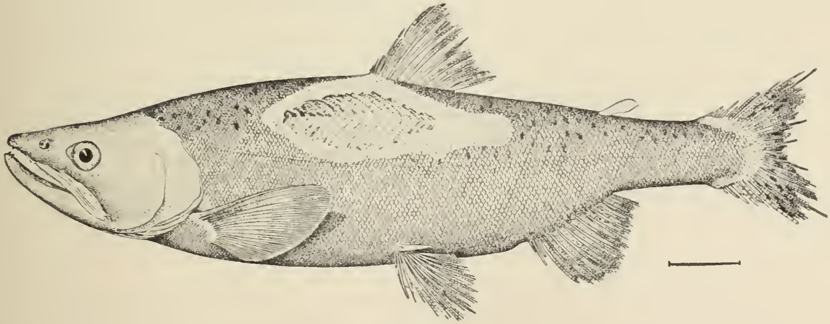
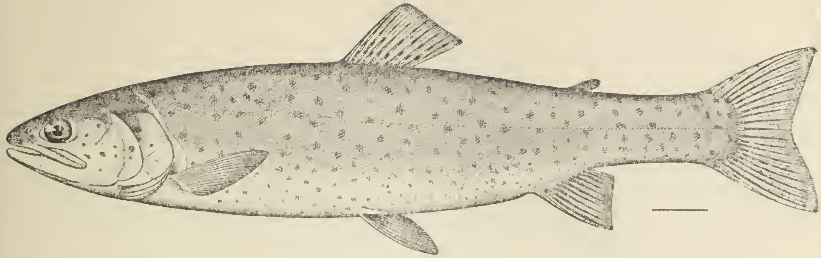


207*a*



207*b*

207. Oncorhynchus nerka; adult male, large form. (P. 481.)
207*a*. Oncorhynchus nerka; adult female, small form. (P. 481.)
207*b*. Oncorhynchus nerka; adult mutilated male, small form. (P. 481.)



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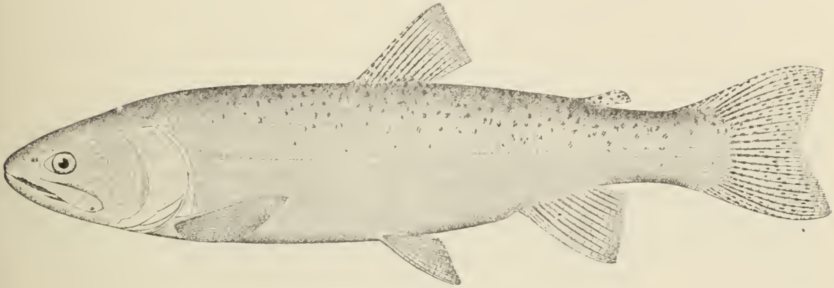

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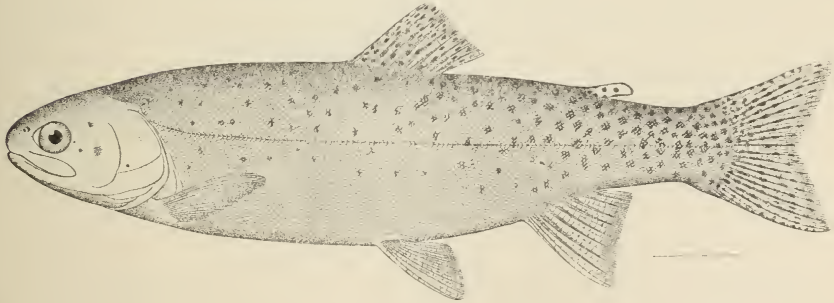
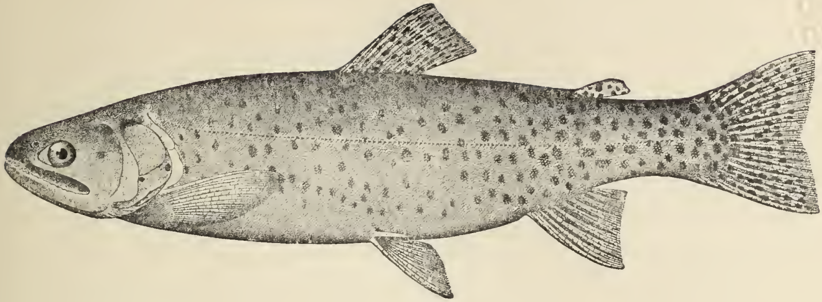


210

208. Salmo clarkii henshawi. (Pp. 493, 2819.)
209. Salmo clarkii virginalis. (Pp. 495, 2819.)
210. Salmo clarkii spilurus. (Pp. 495, 2819.)



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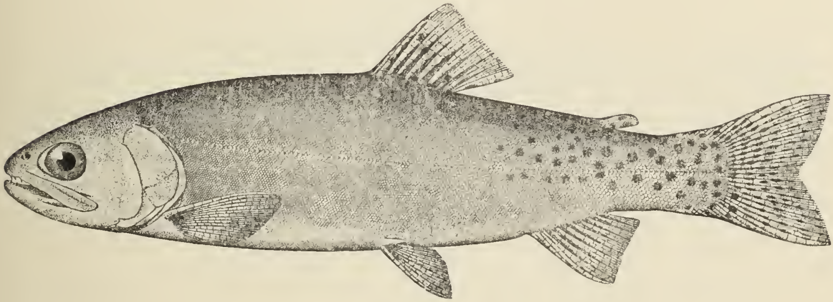

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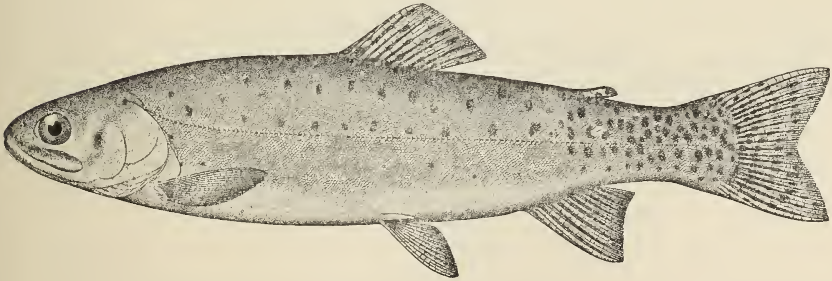
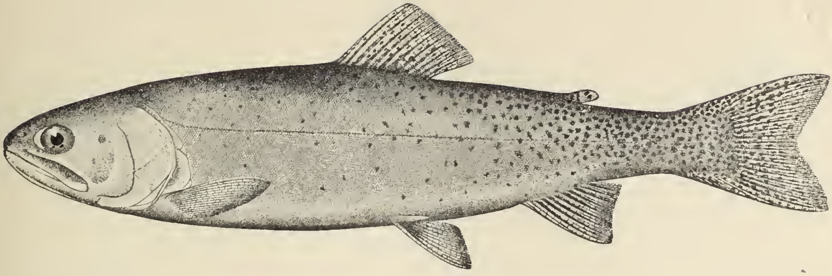


213

211. Salmo clarkii pleuriticus. (Pp. 496, 2819.)
212. Salmo clarkii bouvieri. (Pp. 496, 2819.)
213. Salmo clarkii stomias. (Pp. 497, 2819.)



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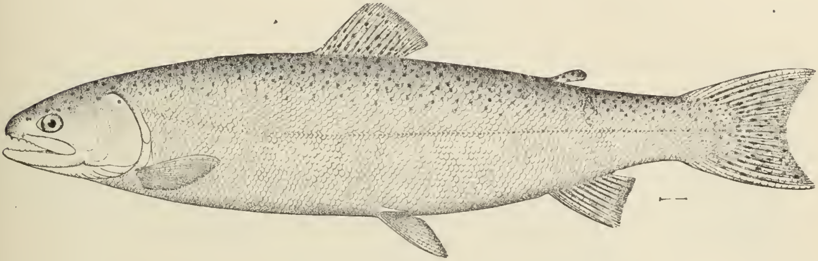

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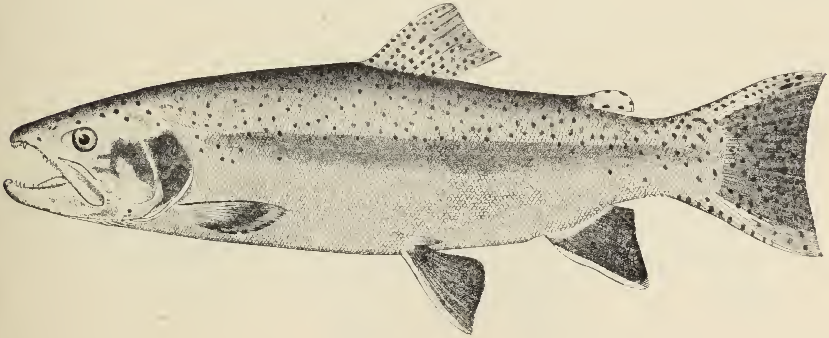
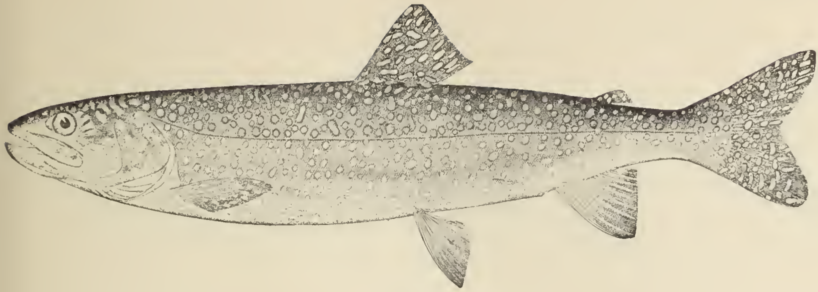


216

214. Salmo clarkii macdonaldi. (Pp. 497, 2819.)
215. Salmo gairdneri. (P. 497.)
216. Salmo irideus. (P. 500.)



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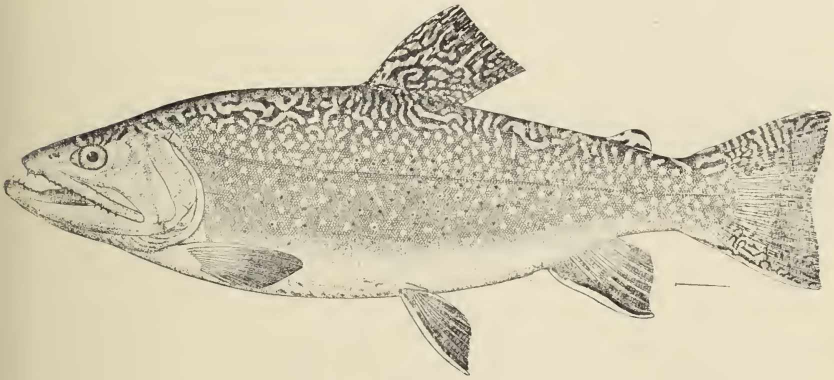

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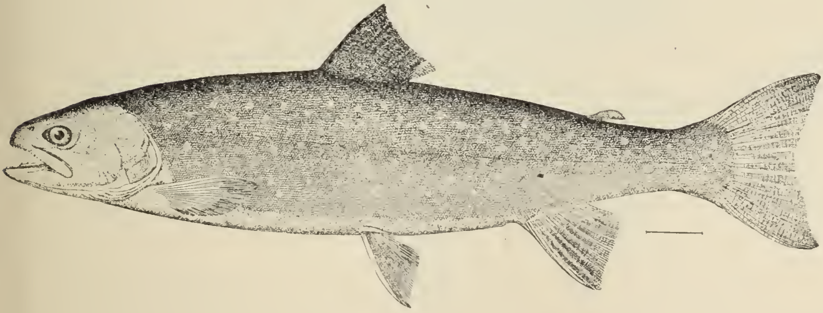
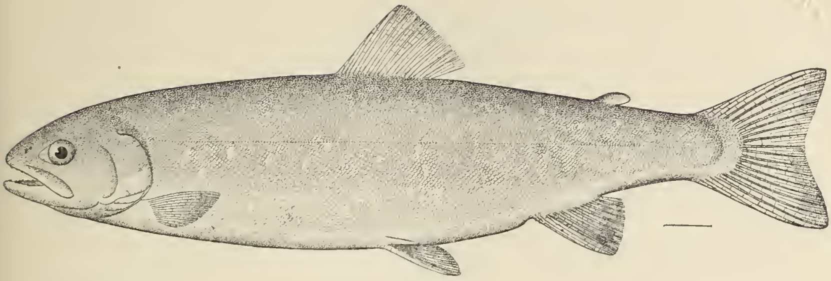


219

217. Cristivomer namaycush. (P. 504.)
218. Salvelinus fontinalis. (P. 506.)
219. Salvelinus malma. (P. 507.)



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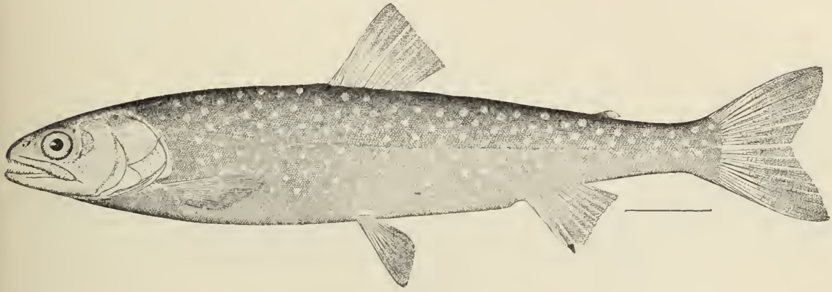

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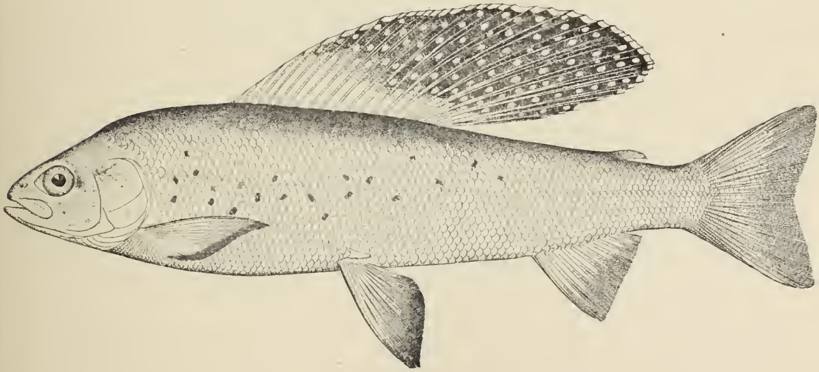
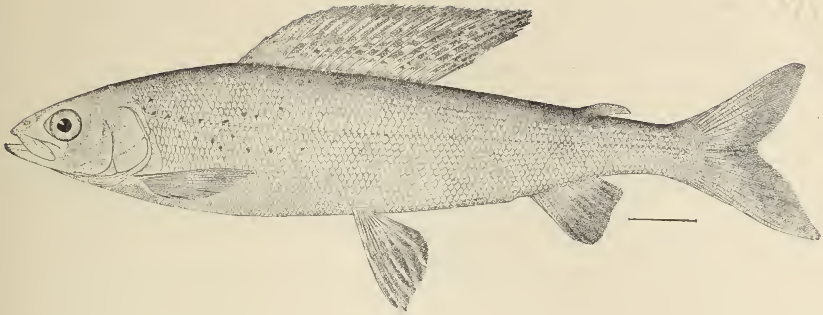


222

220. Salvelinus alpinus aureolus. (P. 511.)
221. Salvelinus oquassa. (P. 514.)
222. Thymallus signifer. (P. 517.)



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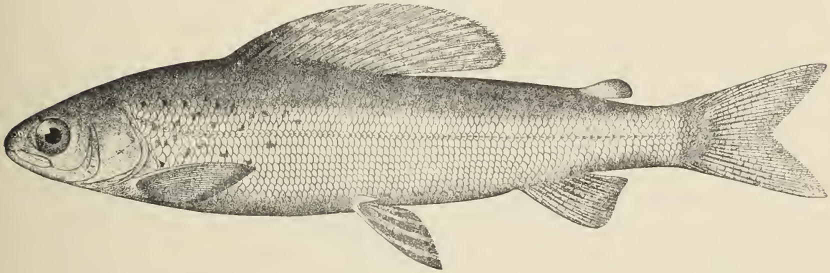

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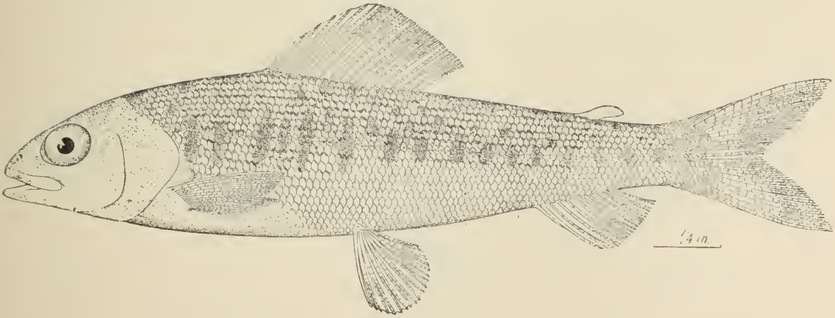
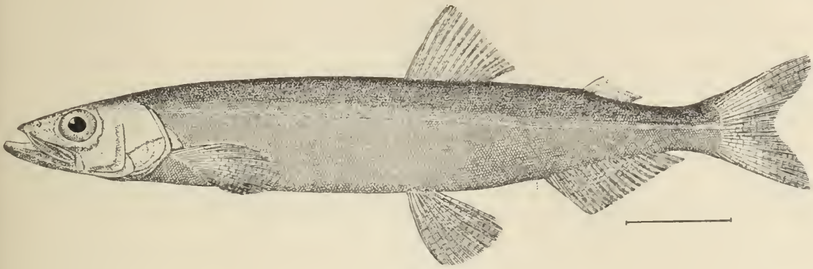


224*a*

223. Thymallus tricolor. (Pp. 518, 2871.)
224. Thymallus tricolor montanus. (Pp. 519, 2871.)
224*a*. Thymallus tricolor montanus; young. (Pp. 519, 2871.)



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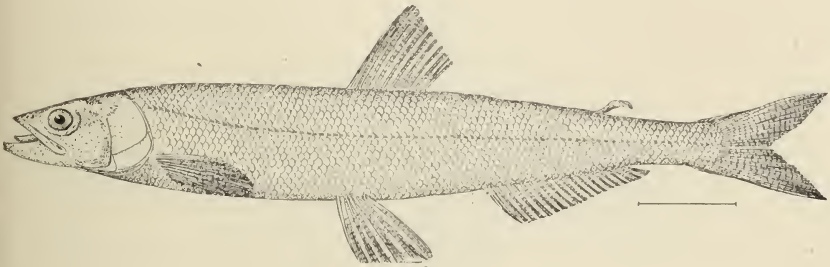

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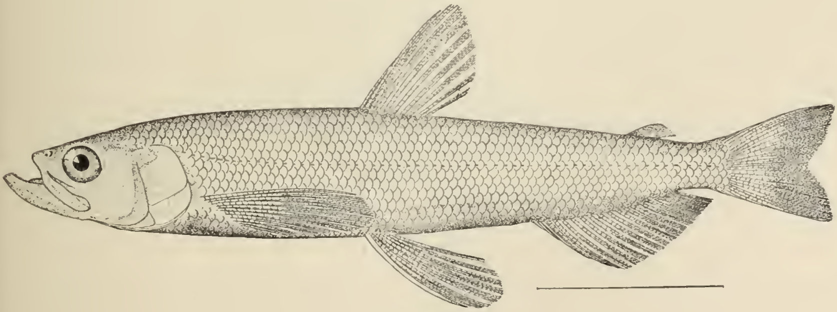
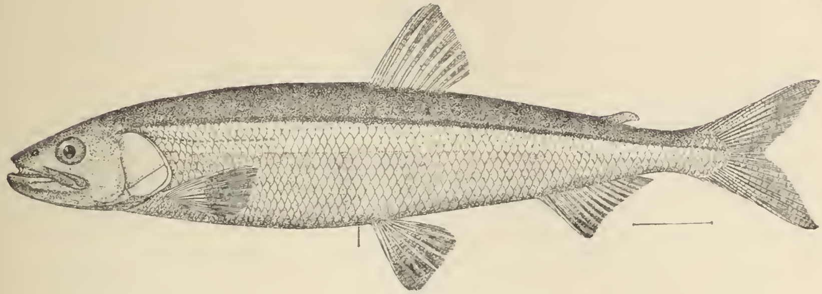


227

225. Mallotus villosus. (P. 520.)
226. Thaleichthys pacificus. (P. 521.)
227. Osmerus thaleichthys. (P. 522.)



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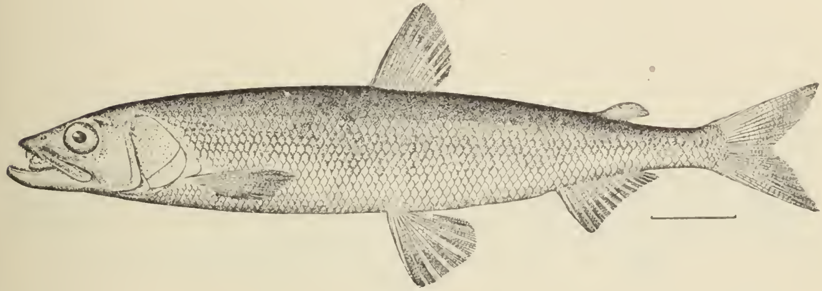

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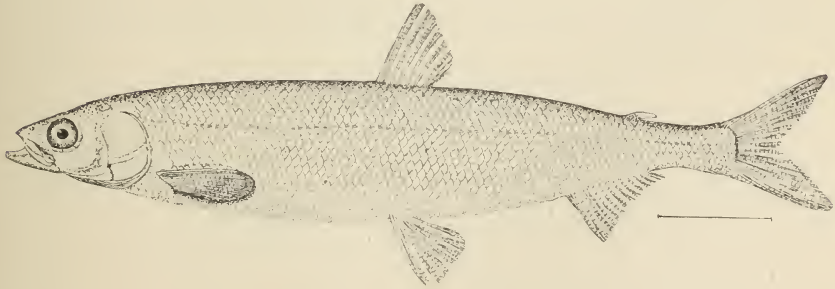
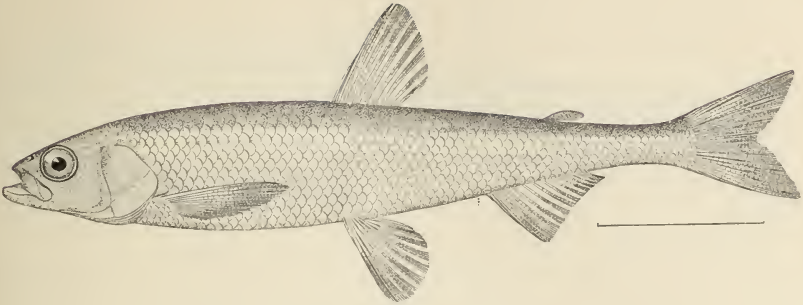


230

228. Osmerus mordax. (P. 523.)
229. Osmerus dentex. (P. 524.)
230. Hypomesus pretiosus. (P. 525.)



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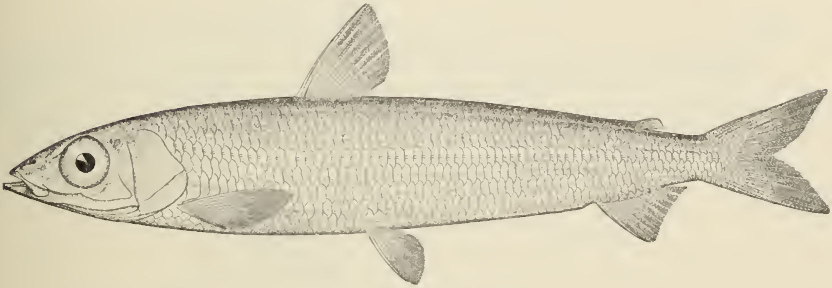

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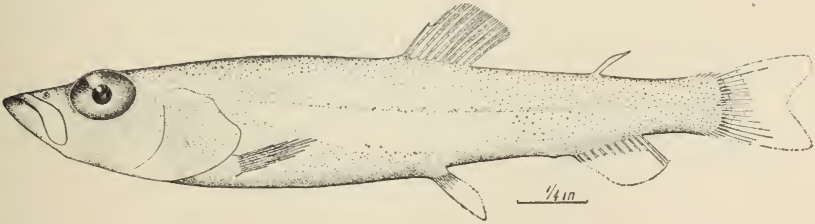
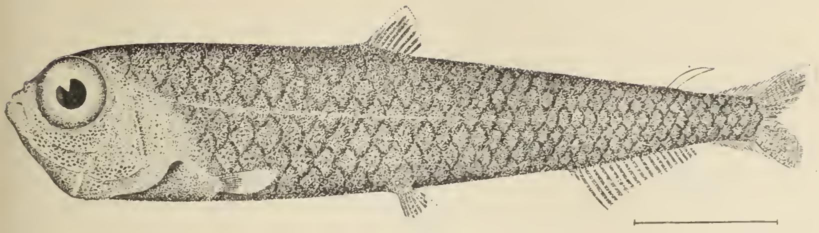


233

231. Hypomesus olidus. (P. 525.)
232. Argentina silus. (P. 526.)
233. Leuroglossus stilbius. (P. 527.)



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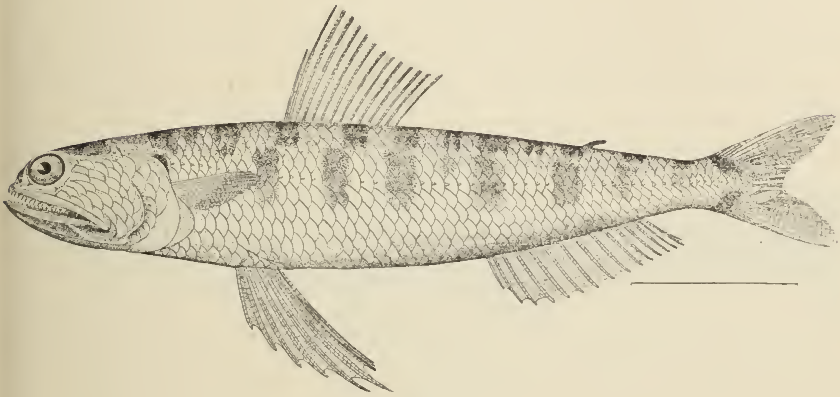

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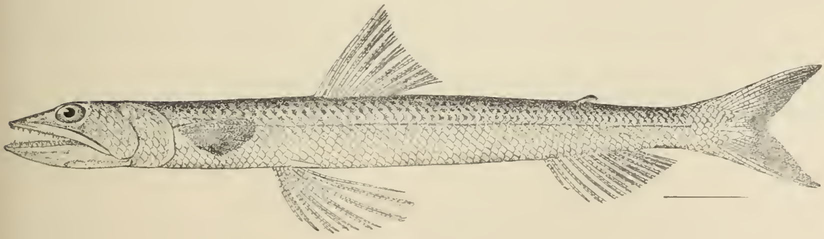
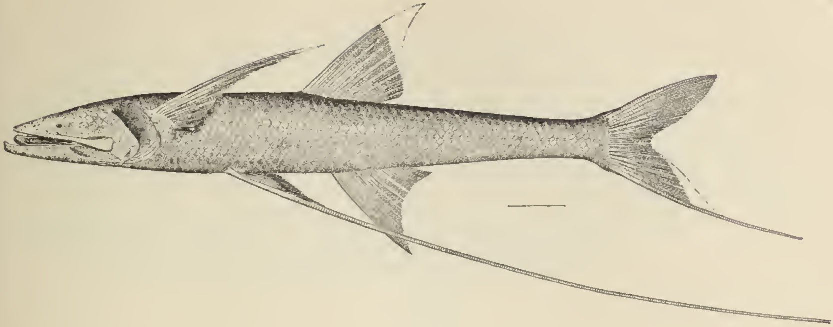


236

234. Bathylagus benedicti. (P. 529.)
235. Trachinocephalus myops. (P. 533.)
236. Synodus fœtens. (P. 538.)



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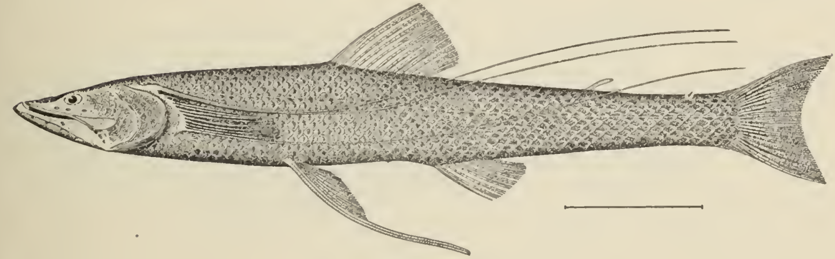

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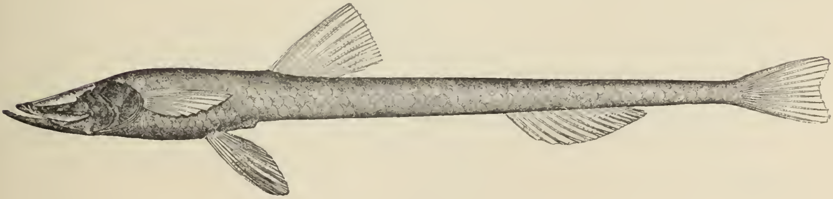
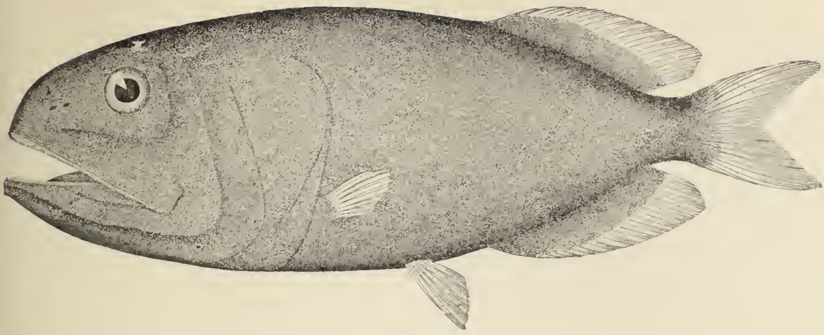


239

237. BENTHOSAURUS GRALLATOR. (P. 543.)
238. BATHYPTEROIS QUADRIFILIS. (P. 545.)
239. IPNOPS MURRAYI. (P. 547.)



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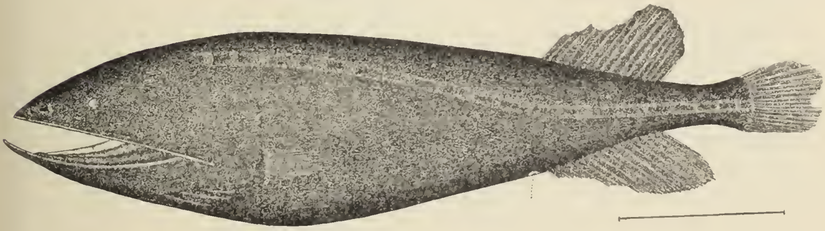

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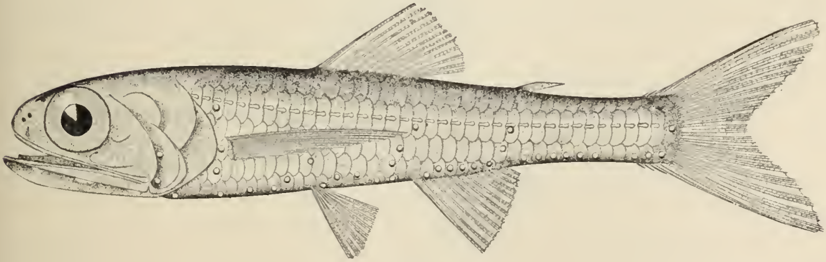
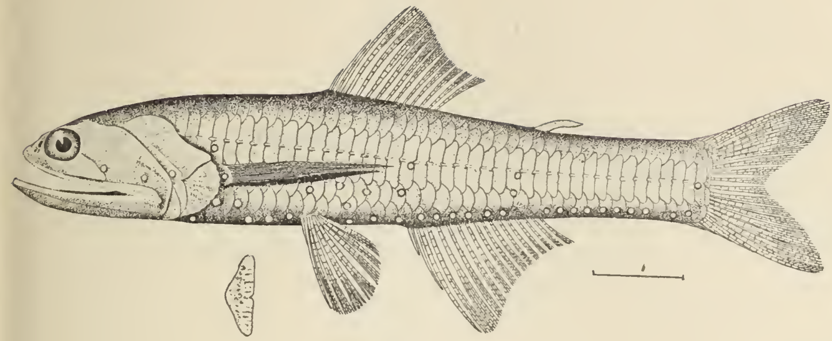


242

240. Rondeletia bicolor. (P. 548.)
241. Cetomimus gillii. (P. 549.)
242. Ceratoscopelus madeirensis. (P. 557.)



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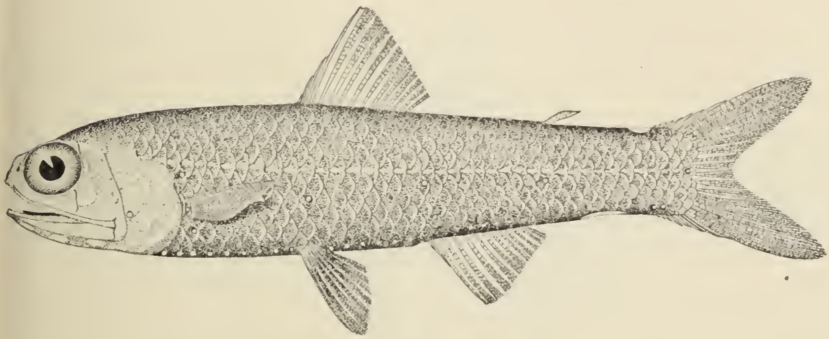

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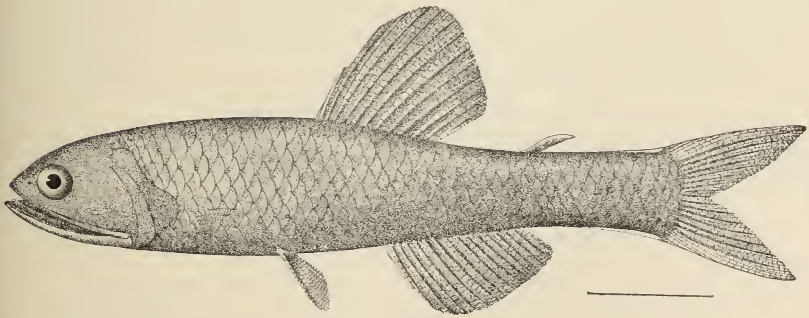
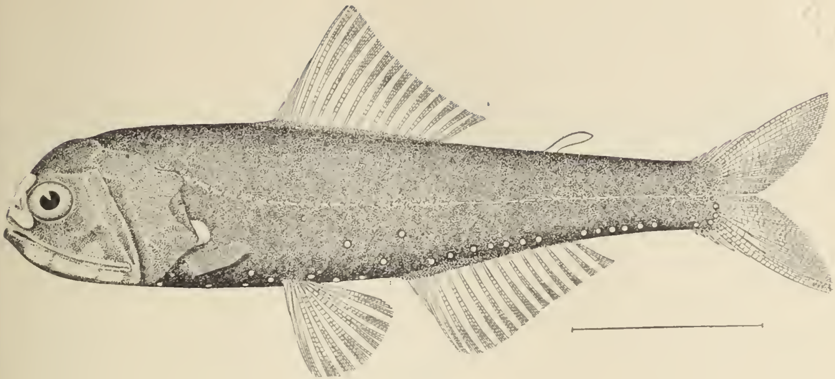


245

243. Lampanyctus crocodilus. (P. 558.)
244. Lampadena speculigera. (P. 561.)
245. Nannobrachium macdonaldi. (P. 563.)



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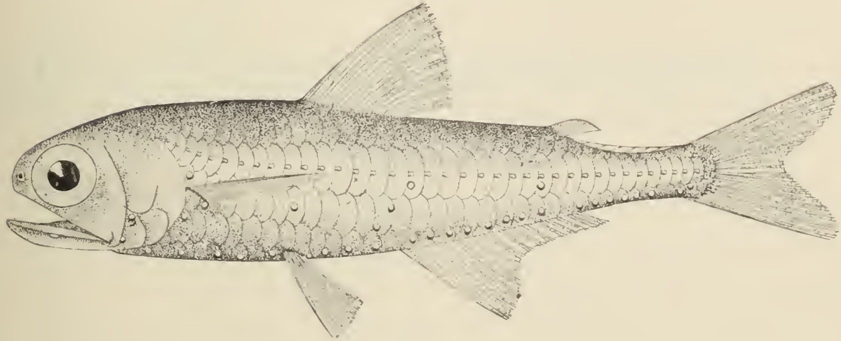
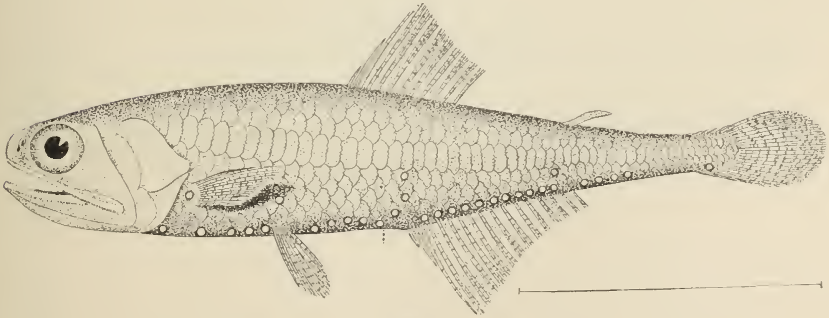
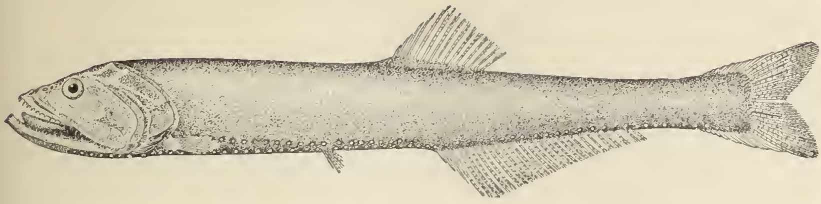


247



248

246. Æthoprora lucida. (P. 565.)
247. Myctophum opalinum. (P. 571.)
248. Tarletonbeania tenua. (P. 575.)



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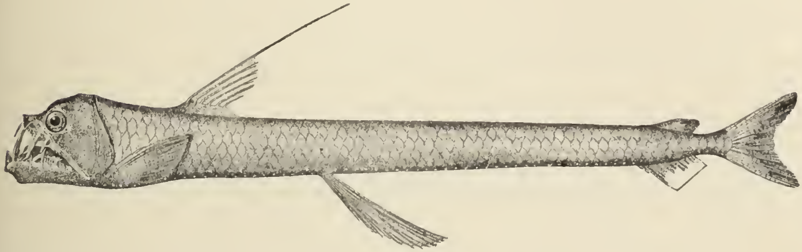

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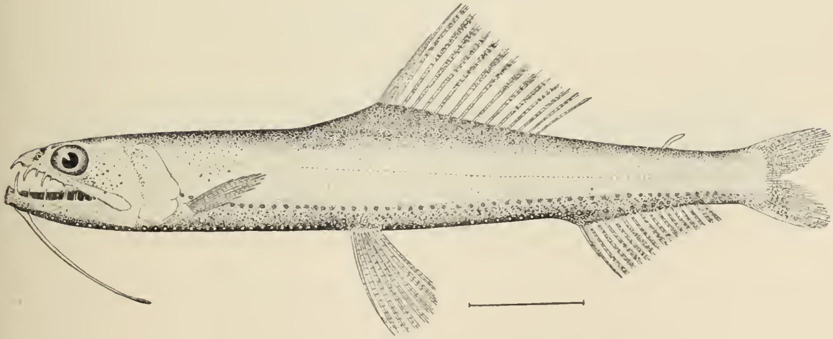
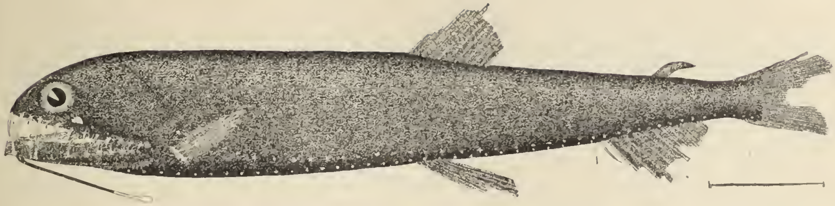


251

249. Yarrella blackfordi. (P. 584.)
250. Chauliodus sloanei. (P. 585.)
251. Astronesthes gemmifer. (P. 586.)



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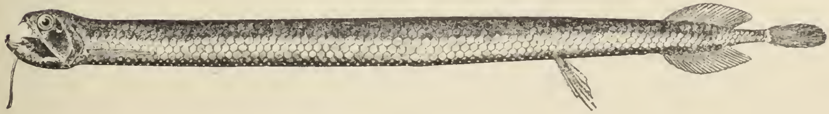

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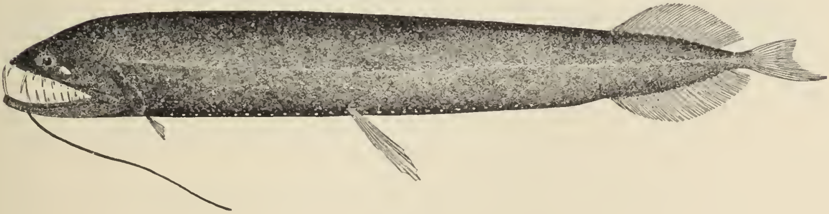
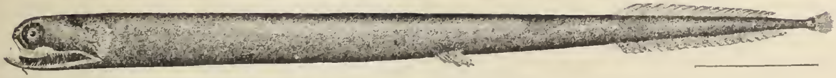


254

252. ASTRONESTHES RICHARDSONI. (P. 587.)
253. STOMIAS FEROX. (P. 588.)
254. GRAMMATOSTOMIAS DENTATUS. (P. 590.)



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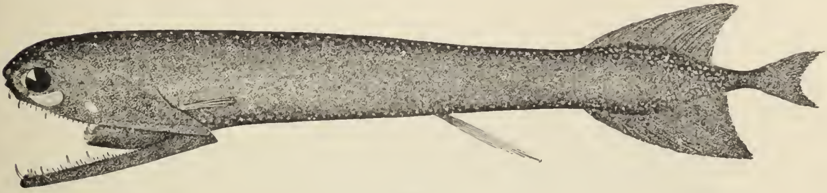

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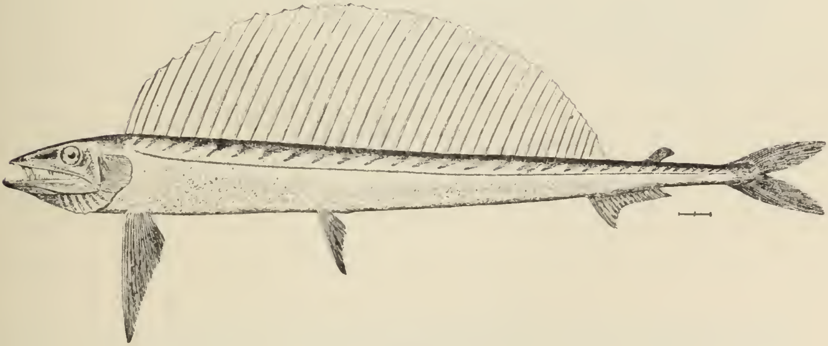
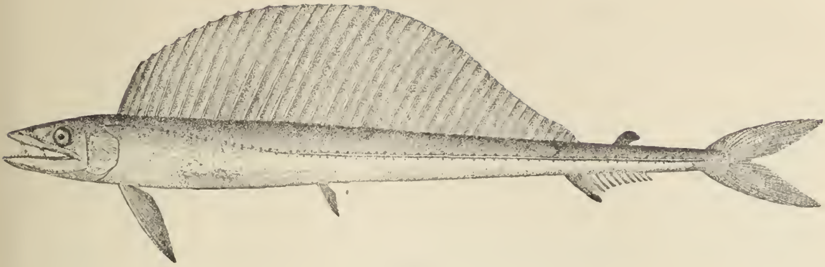


257

255. PHOTONECTES GRACILIS. (P. 591.)
256. MALACOSTEUS NIGER. (P. 593.)
257. ALEPISAURUS FEROX. (P. 595.)



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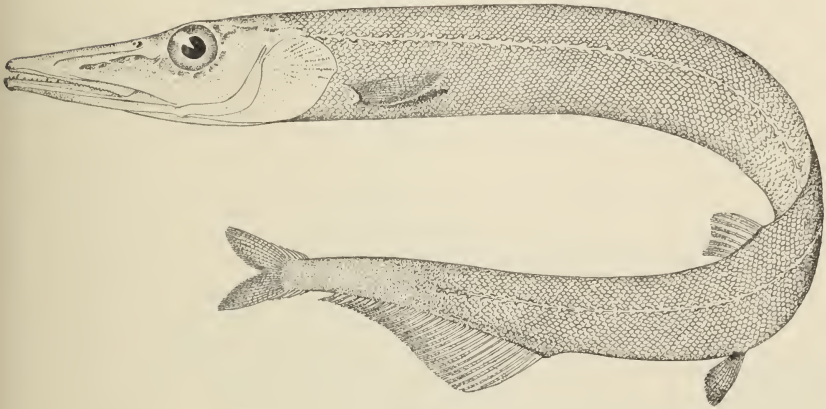

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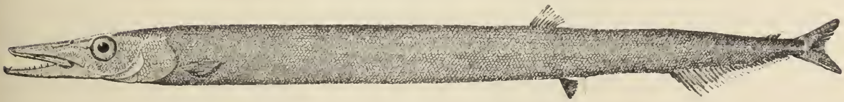
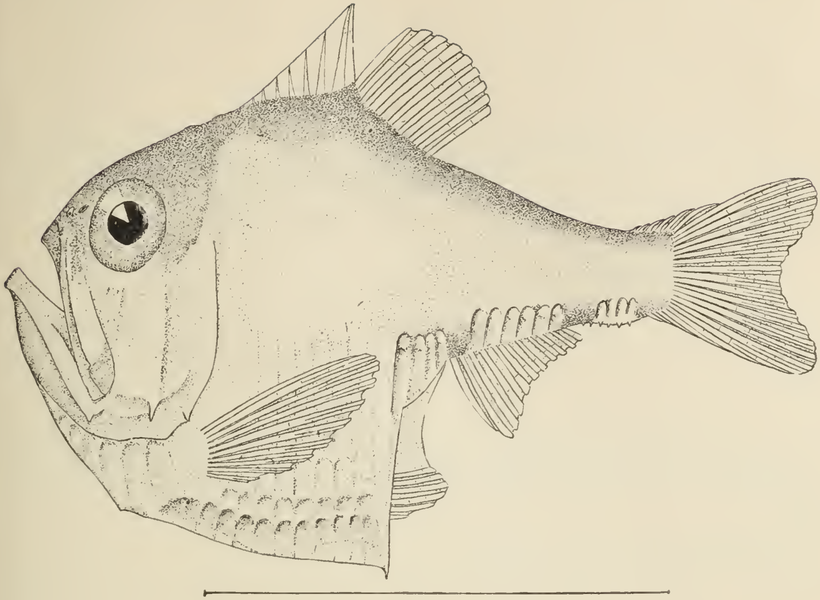


260

258. Alepisaurus æsculapius. (P. 595.)
259. Arctozenus coruscans. (P. 601.)
260. Paralepis coregonoides. (P. 602.)



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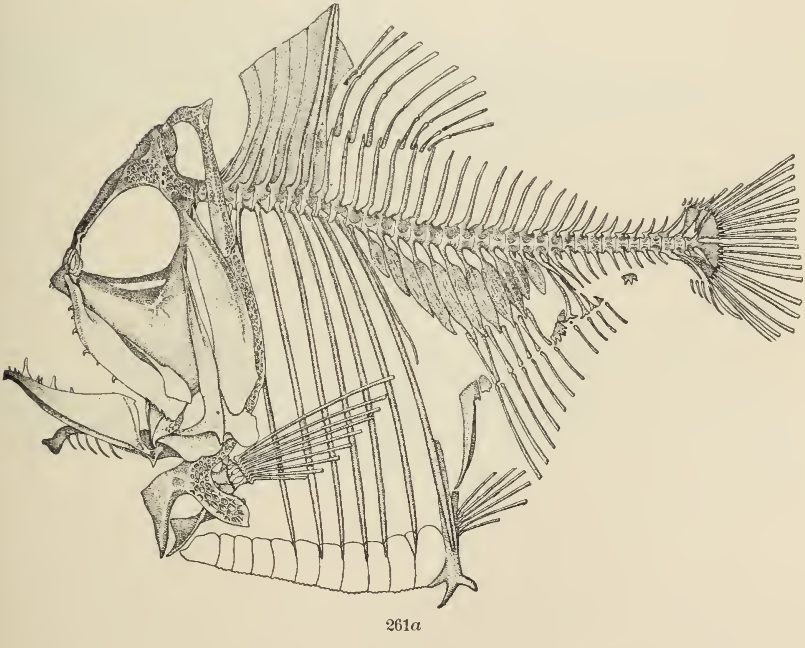
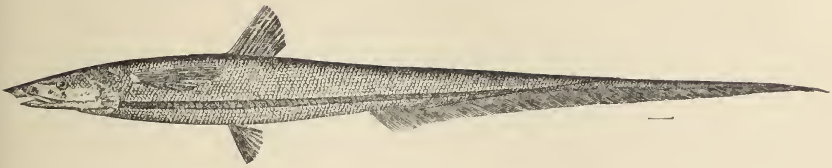


261a

261, 261*a*. Argyropelecus olfersi. (P. 604.)



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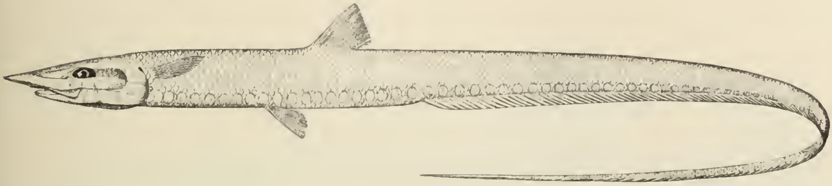

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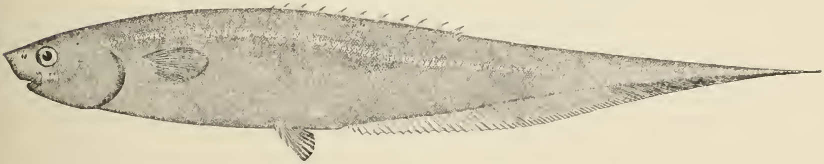

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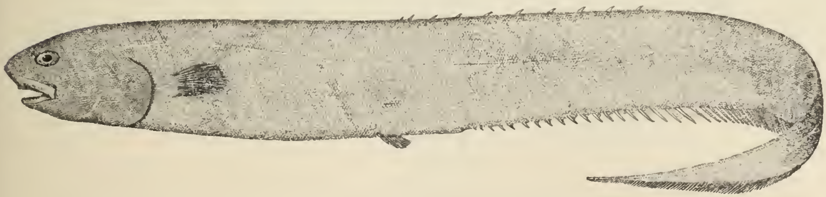
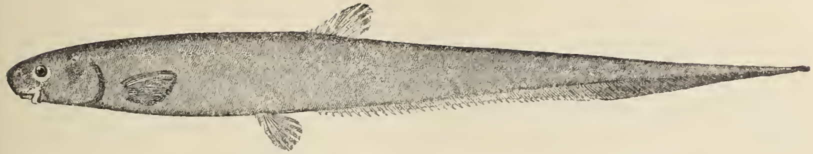


265

262. Aldrovandia macrochir. (P. 609.)
263. Aldrovandia gracilis. (P. 610.)
264. Notacanthus analis. (P. 615.)
265. Notacanthus phasganorus. (P. 616.)



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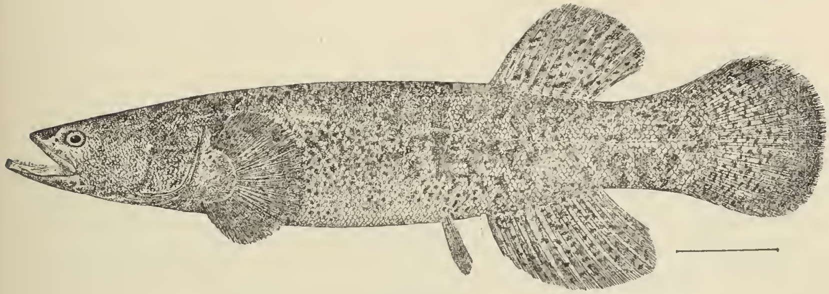
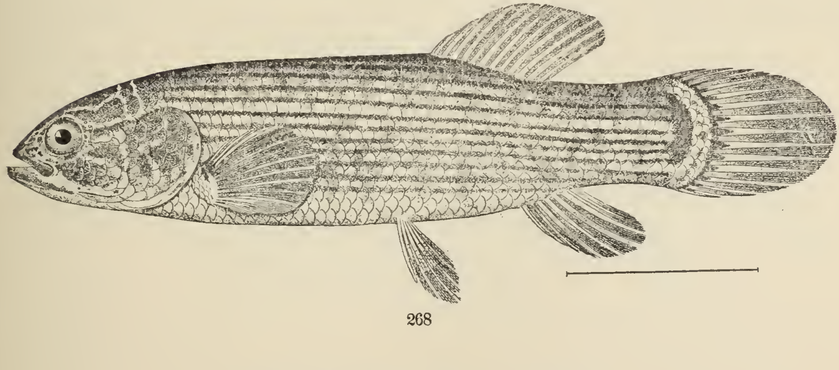
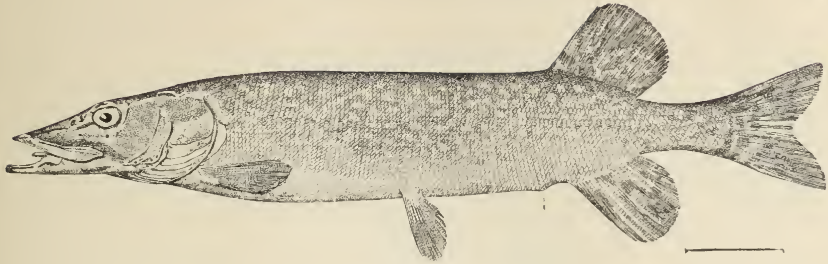


267



268

266. LIPOGENYS GILLII. (P. 619.)
267. DALLIA PECTORALIS. (P. 621.)
268. UMBRA PYMÆA. (P. 624.)



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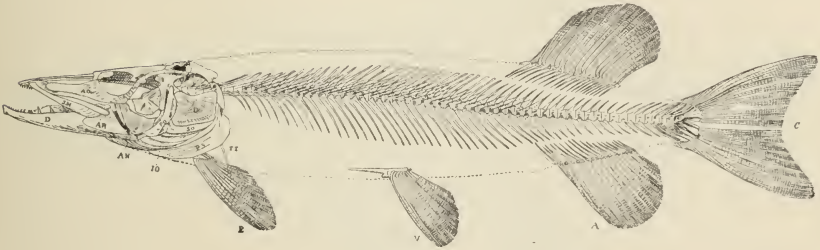
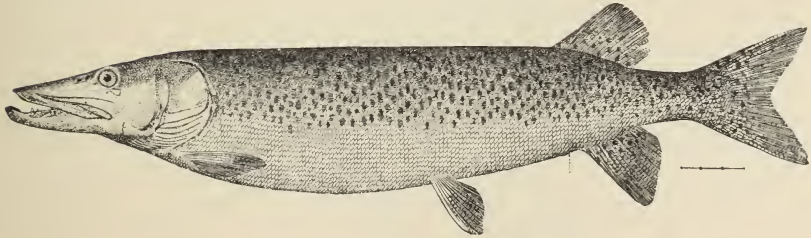
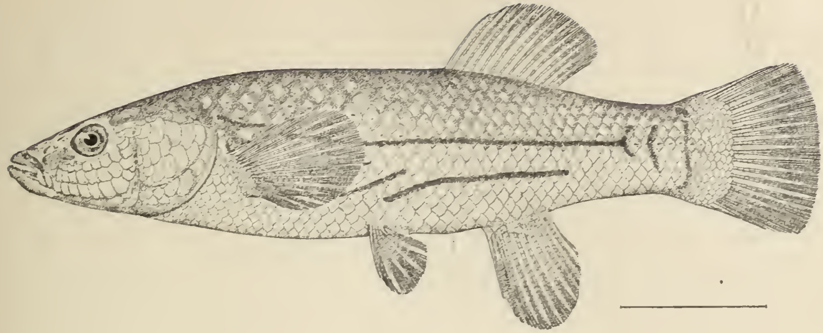


269*a*

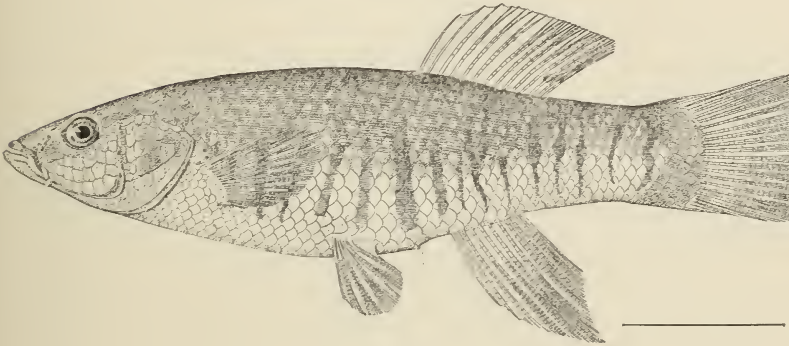


270

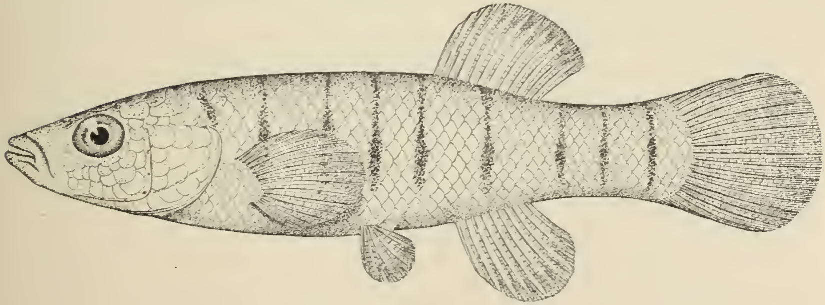
269, 269*a*. Lucius lucius. (P. 628.)
270. Lucius masquinongy. (P. 629.)



271

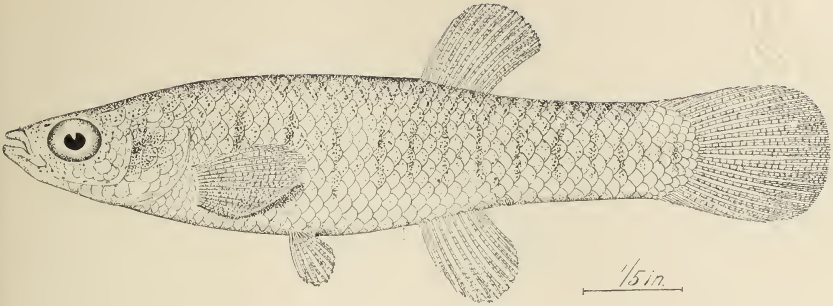


271*a*



271*b*

271. Fundulus majalis; female. (P. 639.)
271*a*. Fundulus majalis; male. (P. 639.)
271*b*. Fundulus majalis; young. (P. 639.)



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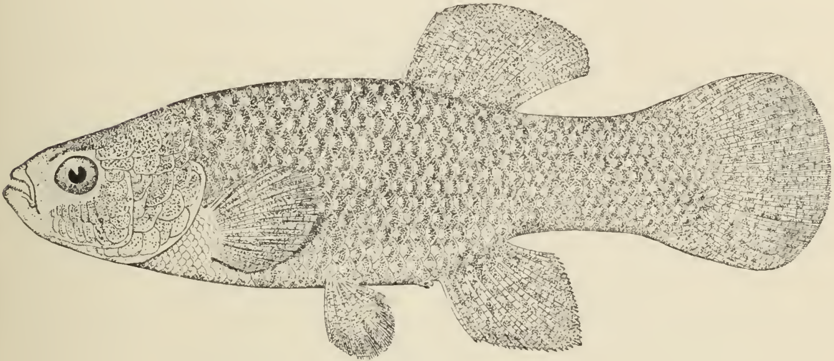

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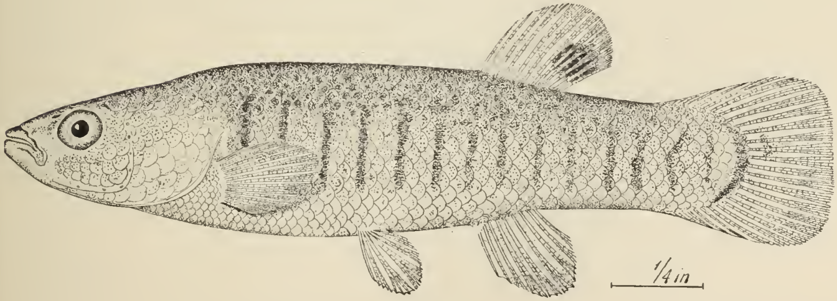
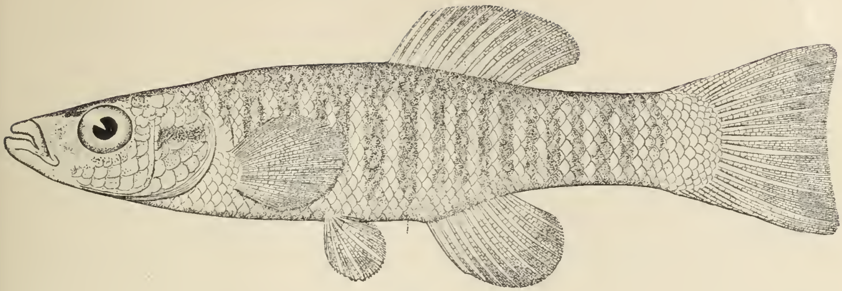


274

272. Fundulus pallidus. (P. 638.)
273. Fundulus heteroclitus; male. (P. 640.)
274. Fundulus ocellaris. (P. 642.)



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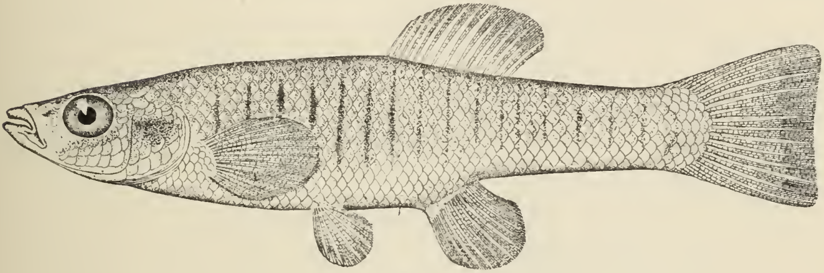
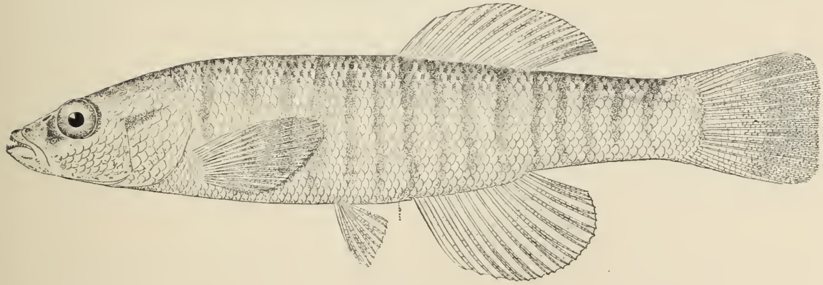
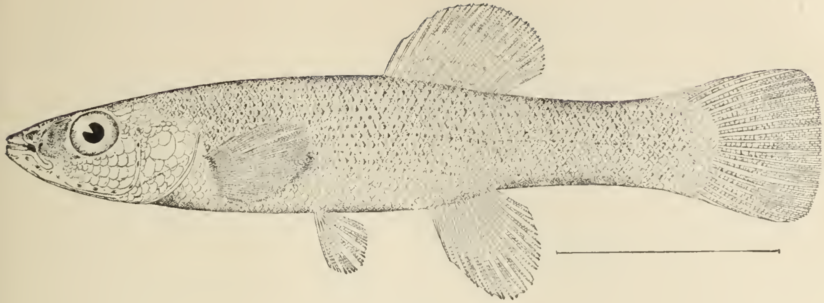


275*a*

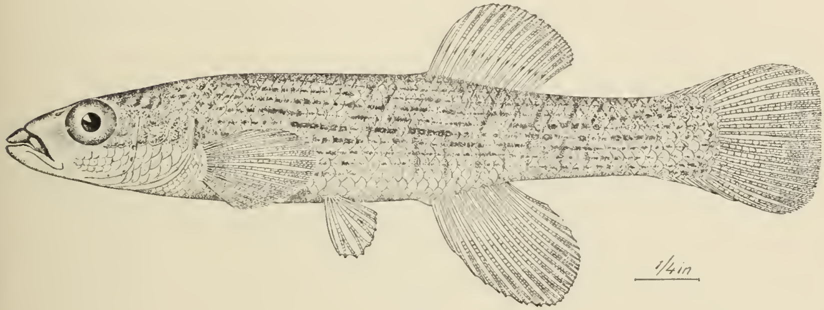


276

275. Fundulus diaphanus; male. (P. 645.)
275*a*. Fundulus diaphanus; female. (P. 645.)
276. Fundulus zebrinus. (P. 646.)



277



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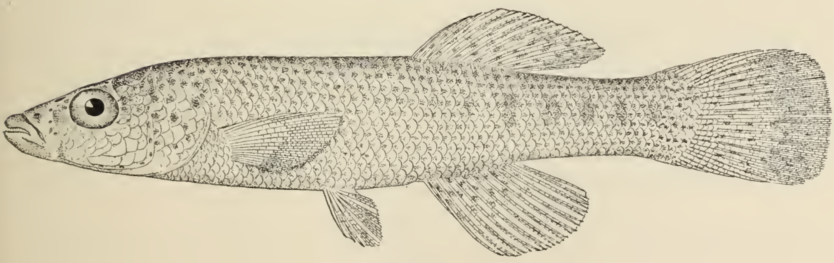
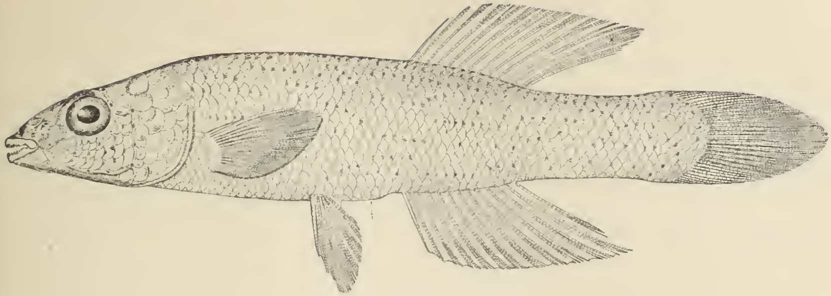


278*a*

277. Fundulus seminolis. (P. 647.)
278. Fundulus catenatus; male. (P. 648.)
278*a*. Fundulus catenatus; female? (P. 648.)



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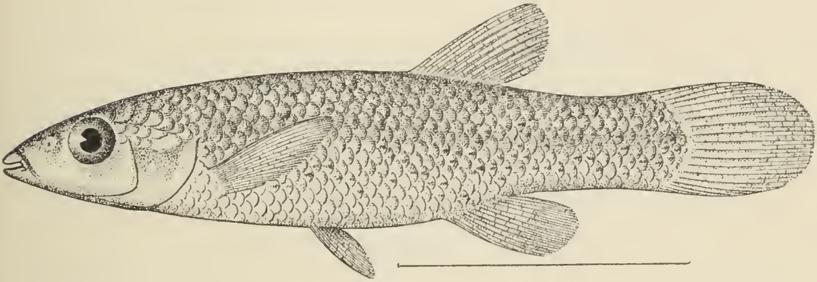

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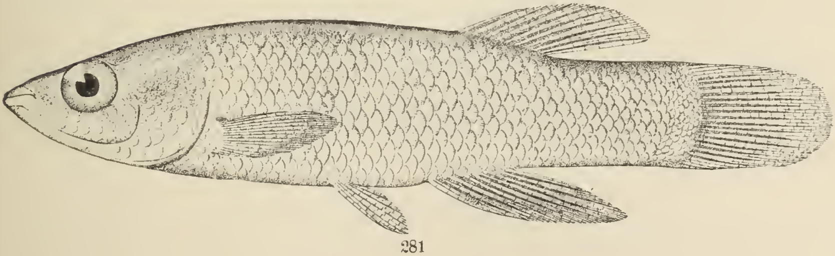
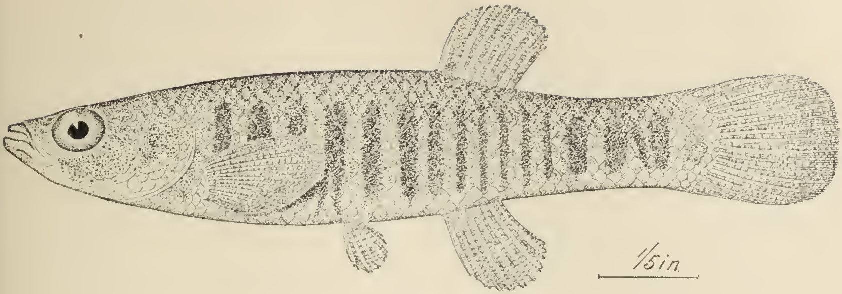


281

279. Fundulus stellifer. (P. 648.)
280. Fundulus rathbuni. (P. 649.)
281. Fundulus albolineatus. (P. 649.)



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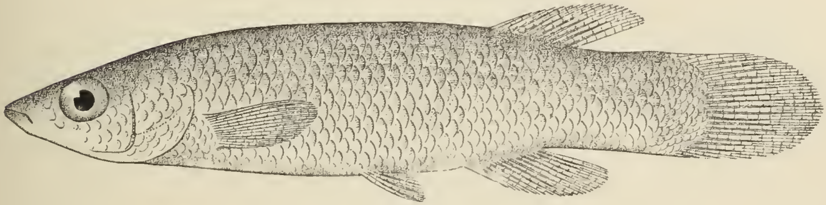

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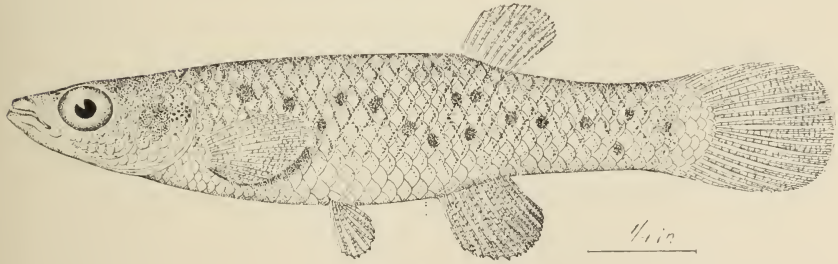
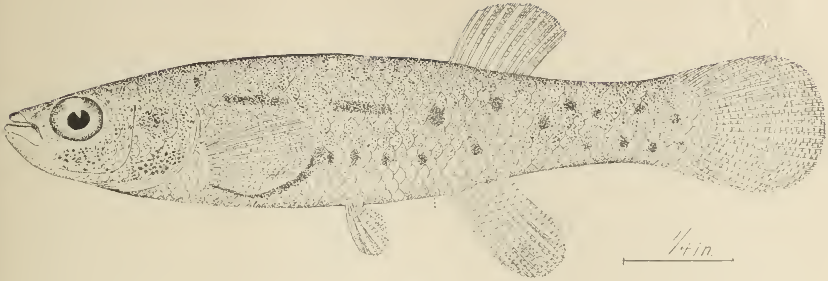
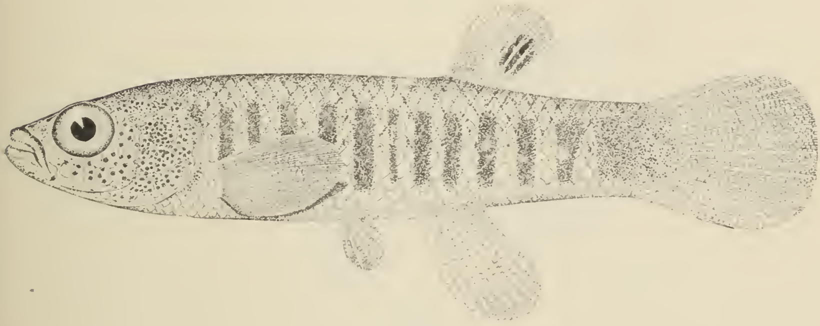


284

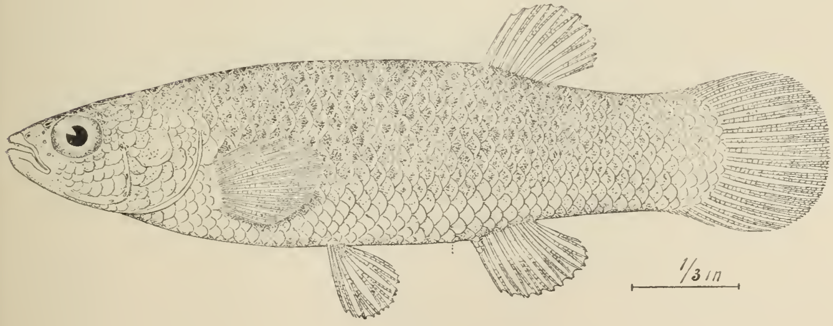
282. FUNDULUS FUNDULOIDES. (P. 650.)
283. FUNDULUS MACDONALDI. (P. 651.)
284. FUNDULUS JENKINSI. (P. 651.)



285

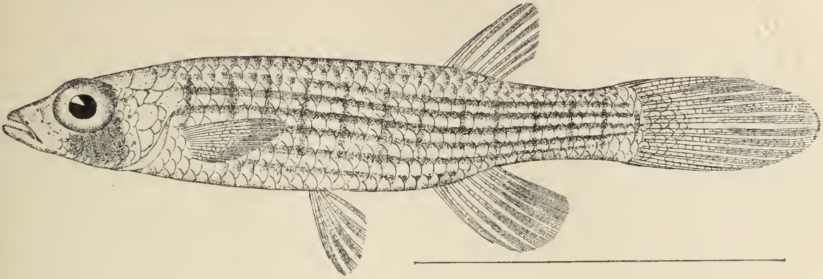


286



287

285. Fundulus pulvereus. (P. 652.)
286. Fundulus luciæ. (P. 654.)
287. Fundulus chrysotus. (P. 655.)



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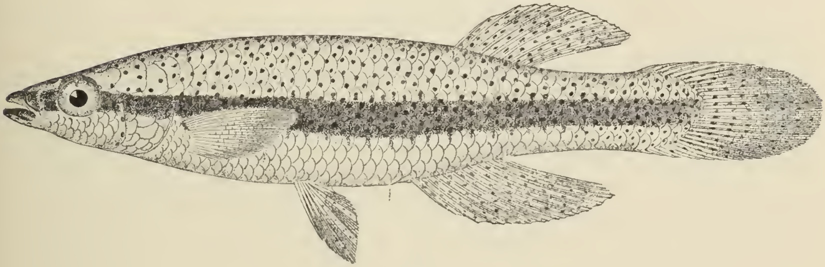

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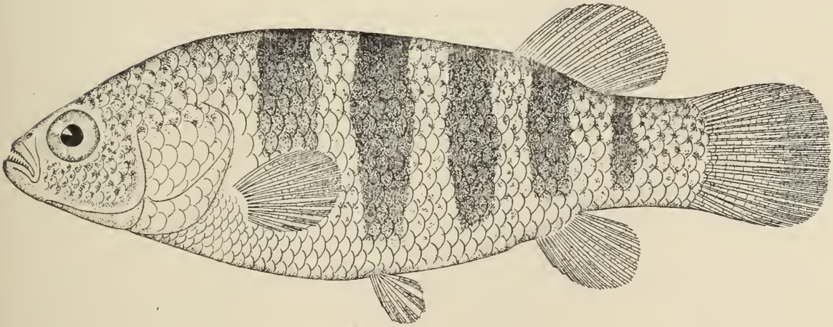
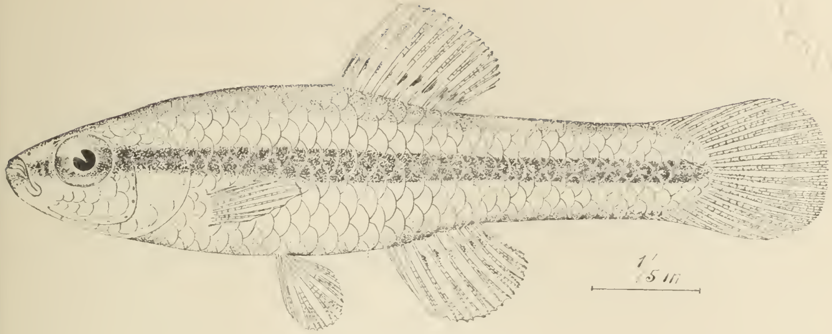


290

288. Fundulus nottii. (P. 656.)
289. Fundulus notatus. (P. 659.)
290. Adinia dugesii. (P. 661.)



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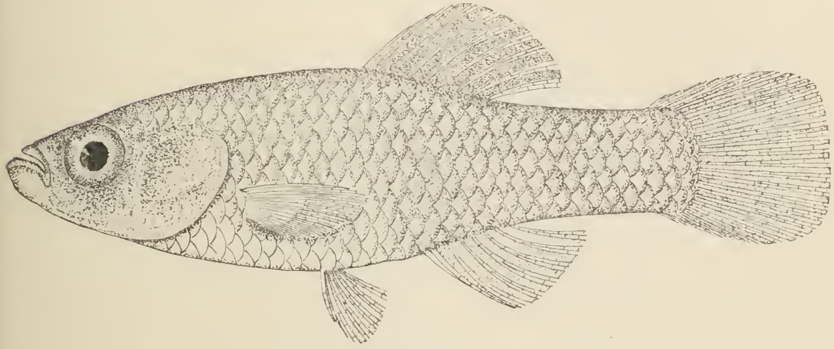

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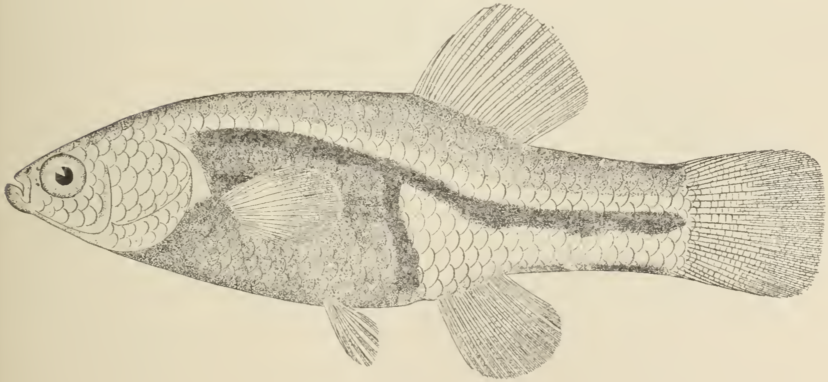
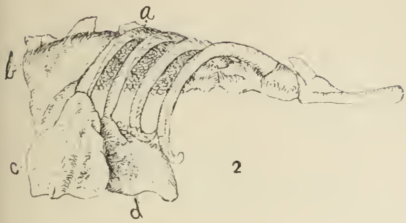


293

291. Fundulus goodei. (Pp. 664, 2831.)
292. Lucania parva. (P. 665.)
293. Characodon bilineatus. (P. 668.)



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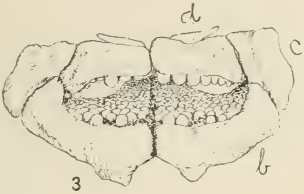
294*a*



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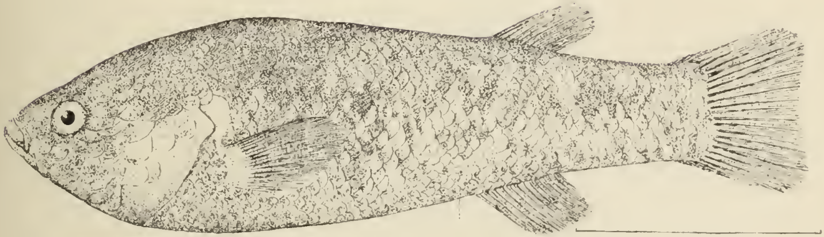
294*b*



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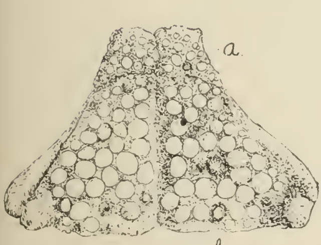

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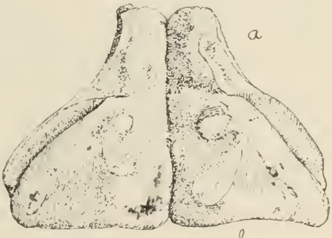
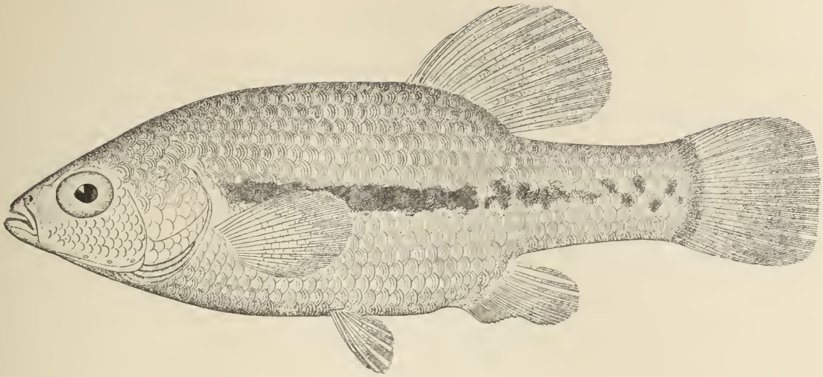
294*c*



5

294*d*

294, 294*a*, 294*b*, 294*c*, 294*d*. EMPETRICHTHYS MERRIAMI. (P. 667.)



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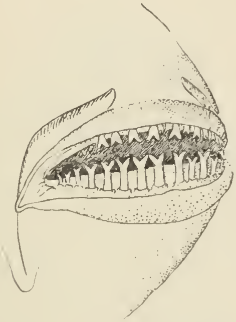
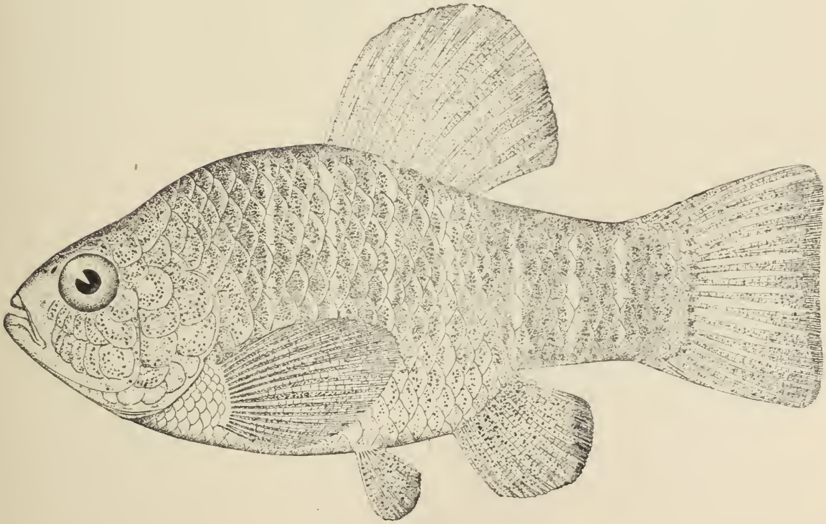
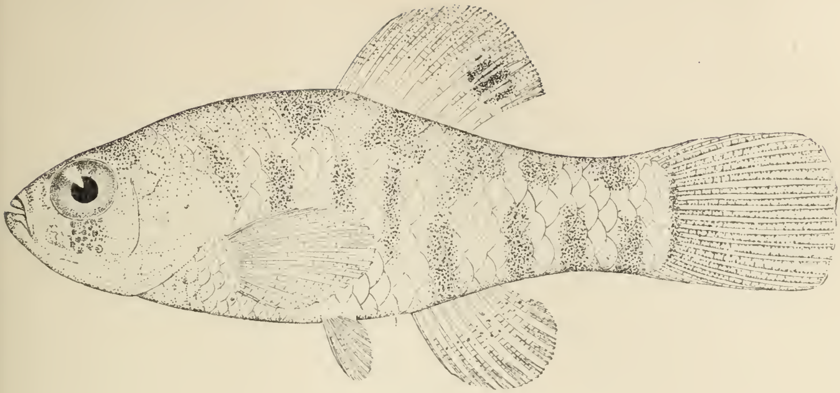


295*a*

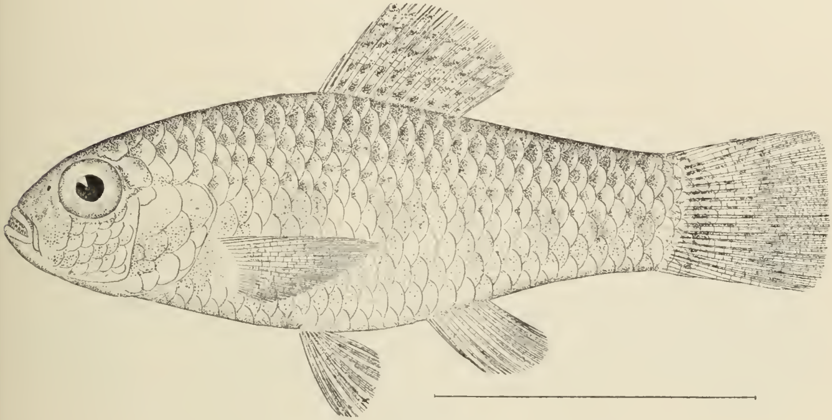


296

295. Characodon variatus. (P. 669.)
295*a*. Teeth of Characodon variatus. (P. 669.)
296. Cyprinodon variegatus. (P. 671.)



296*a*



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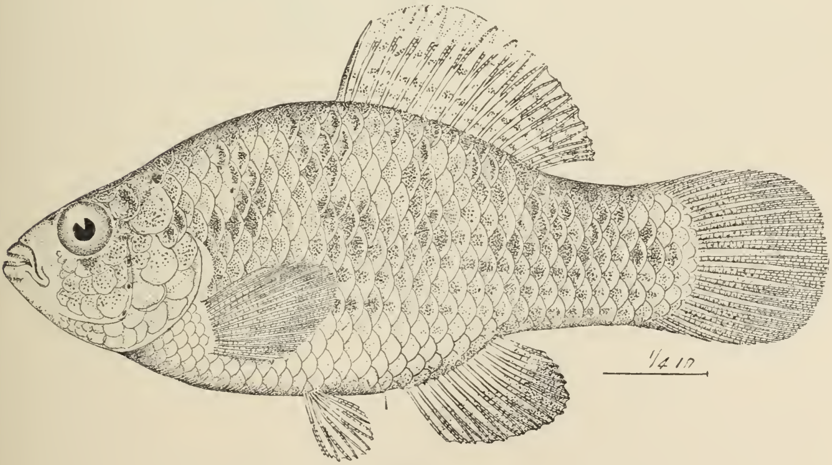
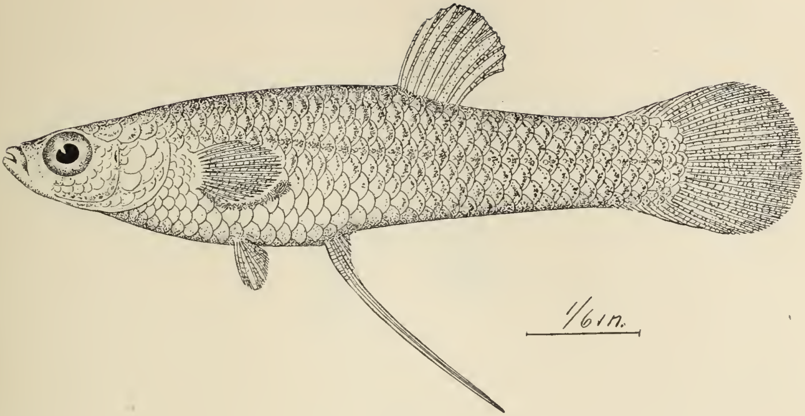


298

296*a*. Cyprinodon variegatus; young. (P. 671.)
297. Cyprinodon carpio. (P. 675.)
298. Jordanella floridæ. (P. 677.)



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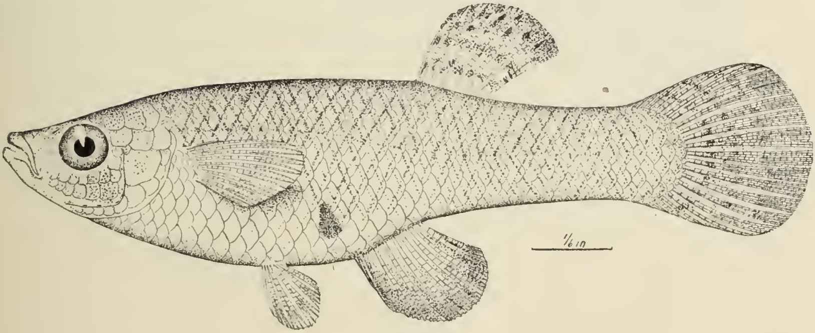
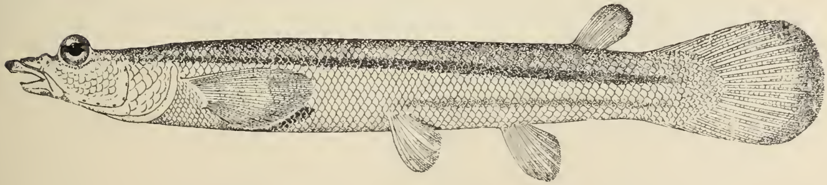
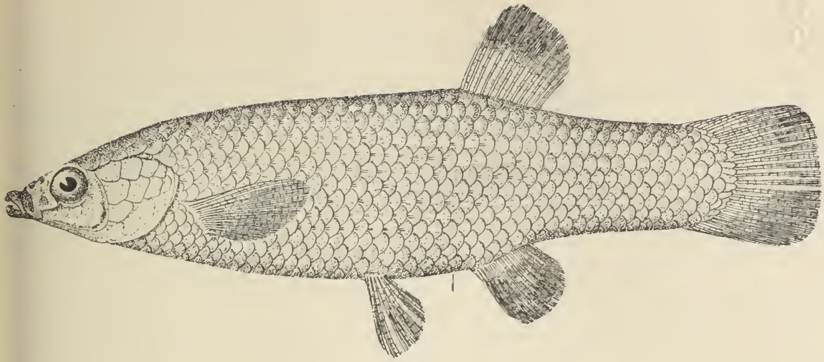


299*a*



300

299. GAMBUSIA AFFINIS; male. (P. 680.)
299*a*. GAMBUSIA AFFINIS; female. (P. 680.)
300. ANABLEPS DOVII. (P. 685.)



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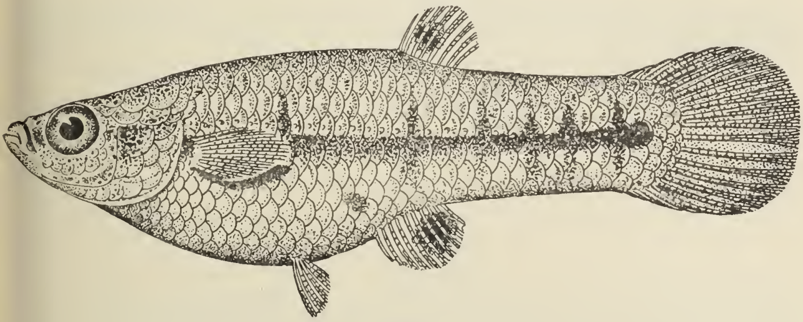

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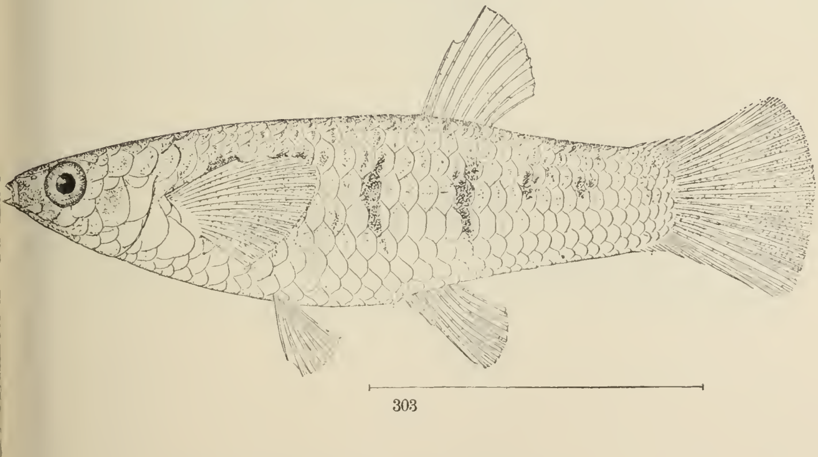
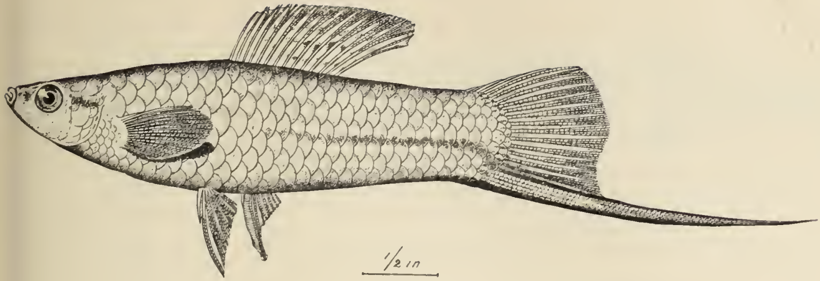


303

301. Goodea atripinnis. (P. 685.)
302. Heterandria formosa. (P. 687.)
303. Pœcilia presidionis; female. (P. 697.)



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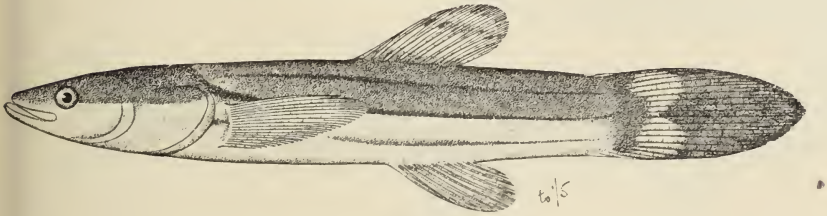

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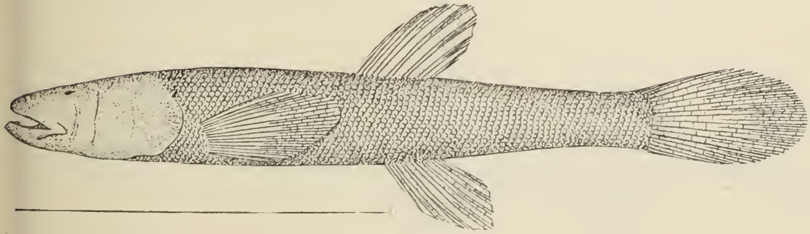

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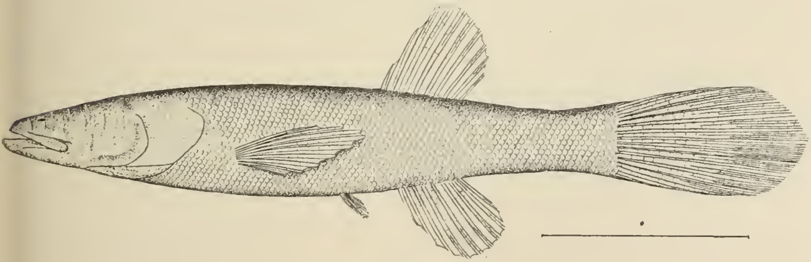
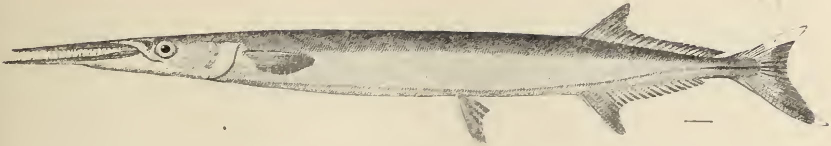


307

304. XIPHOPHORUS HELLERI. (P. 701.)
305. CHOLOGASTER CORNUTUS. (P. 703.)
306. TYPHLICHTHYS SUBTERRANEUS. (P. 704.)
307. AMBLYOPSIS SPELÆUS. (P. 706.)



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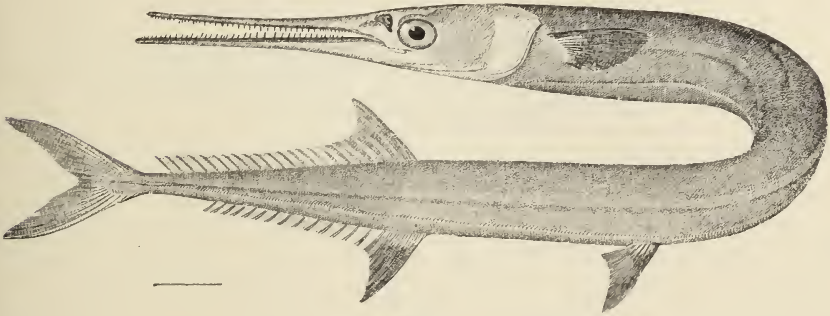

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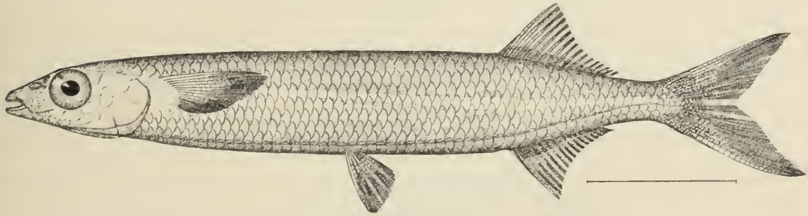

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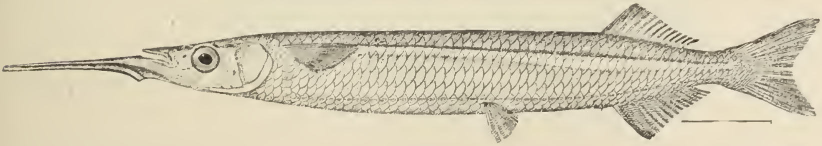
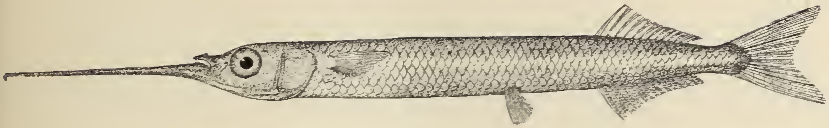


311

308. Tylosurus raphidoma. (P. 715.)
309. Tylosurus acus. (P. 716.)
310. Chriodorus atherinoides. (P. 719.)
311. Hyporhamphus unifasciatus. (P. 720.)



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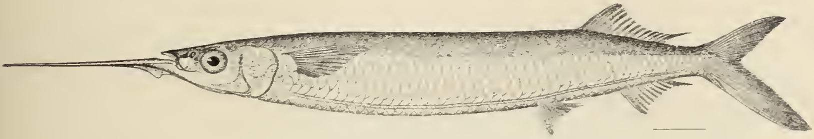

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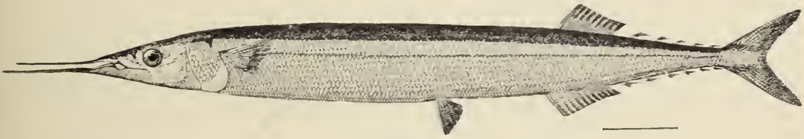

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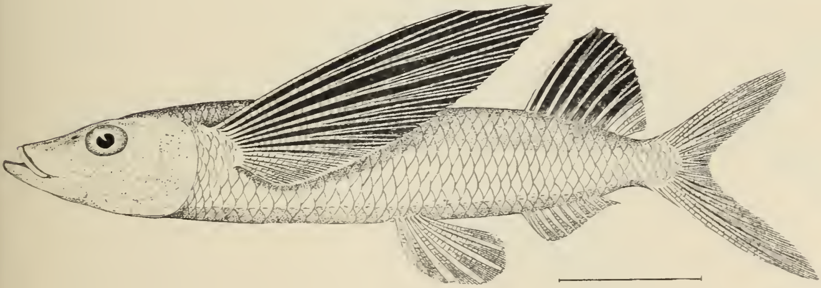
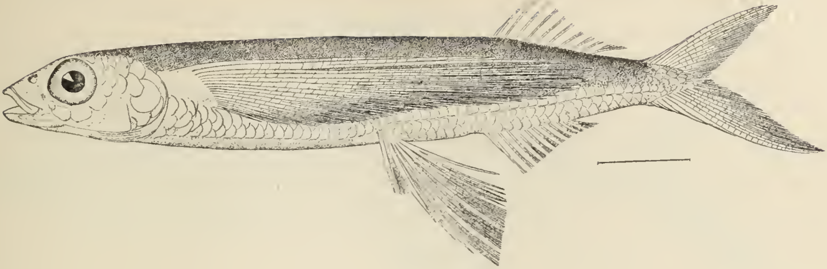


315

312. Hyporhamphus roberti. (P. 721.)
313. Hemiramphus brasiliensis. (P. 722.)
314. Scombresox saurus. (P. 725.)
315. Fodiator acutus. (P. 728.)



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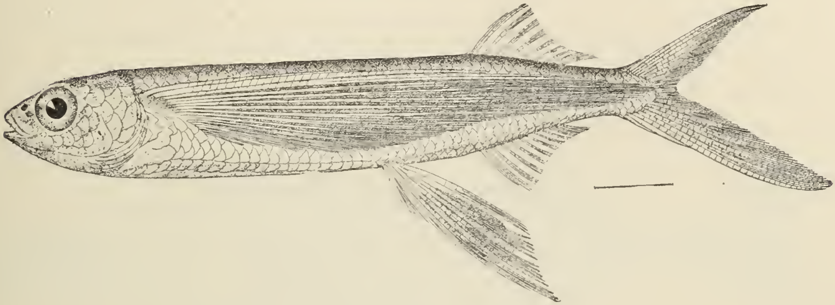

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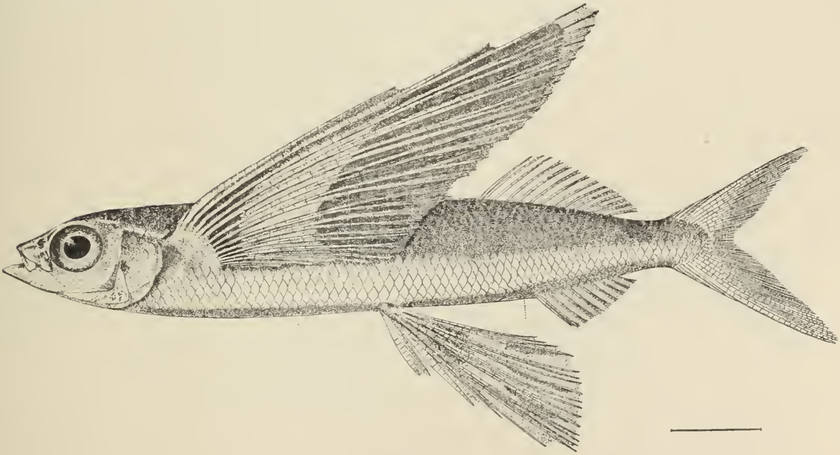
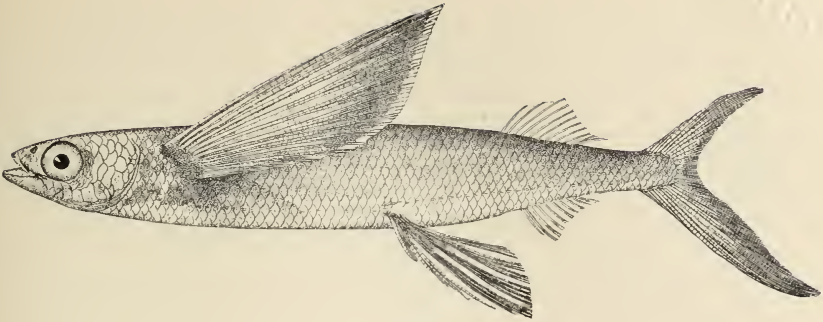


318

316. Exonautes exsiliens. (Pp. 732, 2830.)
317. Exonautes rondeletii. (Pp. 733, 2830.)
318. Exocœtus volitans. (P. 734.)



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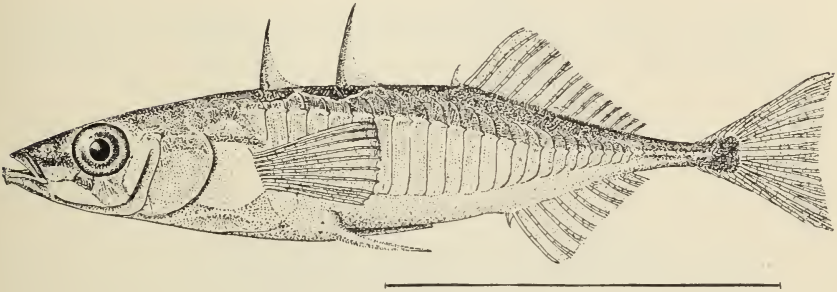

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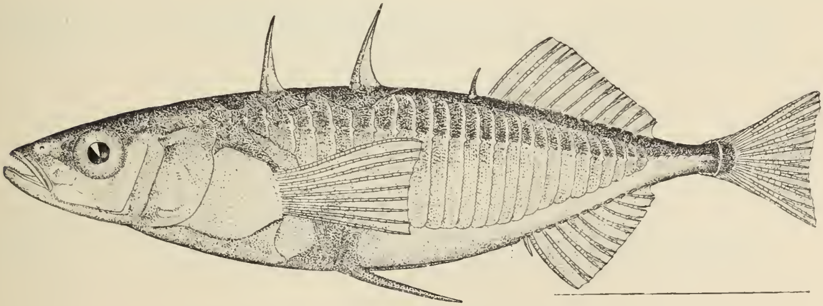
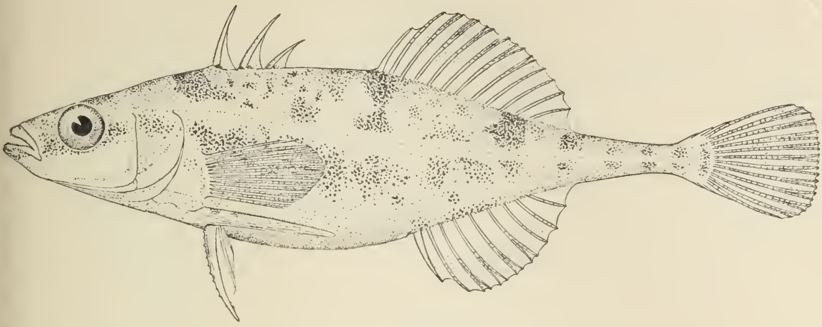


321

319. Cypsilurus californicus. (Pp. 740, 2830.)
320. Gasterosteus aculeatus. (P. 747.)
321. Gasterosteus cataphractus. (P. 749.)



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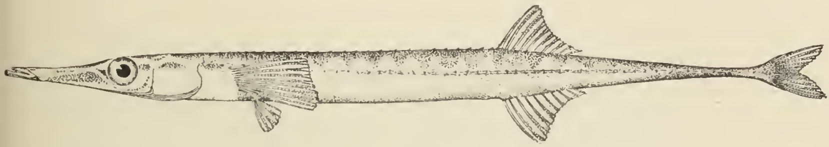

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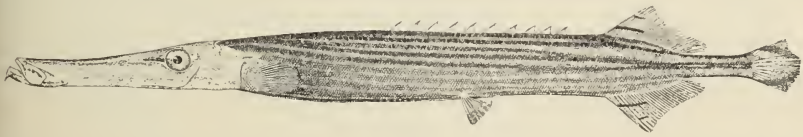

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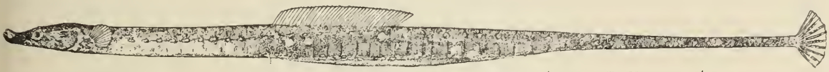

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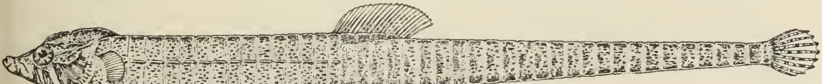
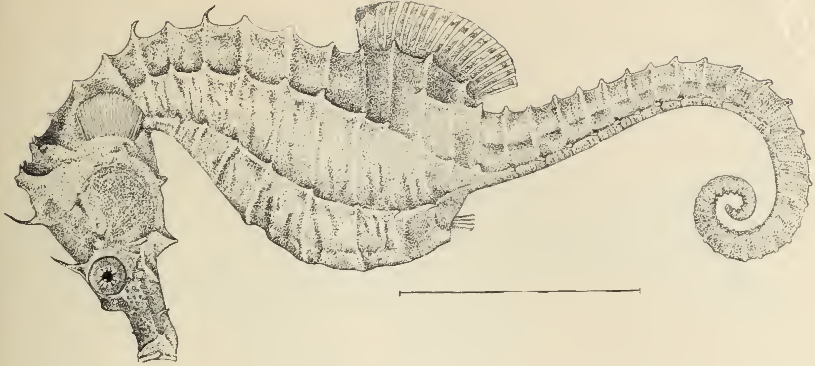


326

322. Apeltes quadracus. (P. 752.)
323. Aulorhynchus flavidus. (P. 754.)
324. Aulostomus maculatus. (P. 754.)
325. Siphostoma starksii. (P. 771.)
326. Corythroichthys cayorum. (P. 2838.)



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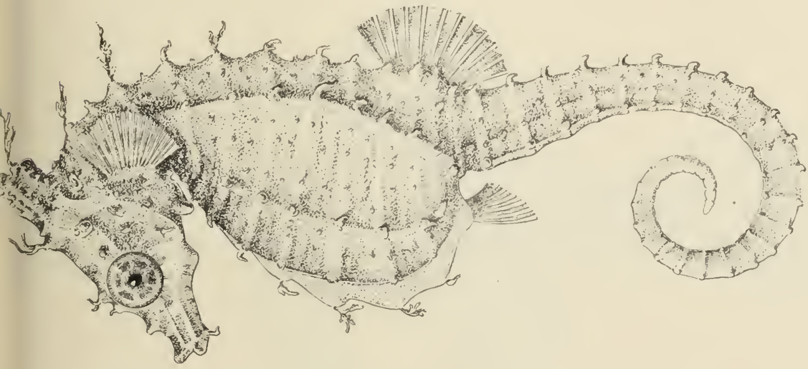

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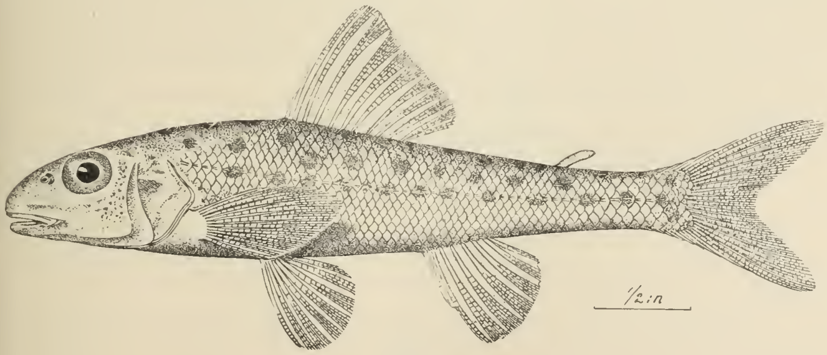

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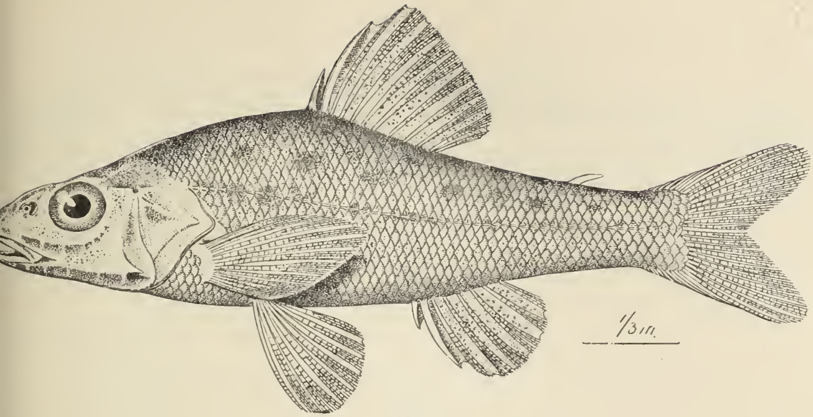
327. Hippocampus hudsonius. (P. 777.)
328. Hippocampus zosteræ. (P. 778.)
329. Percopsis guttatus. (P. 784.)



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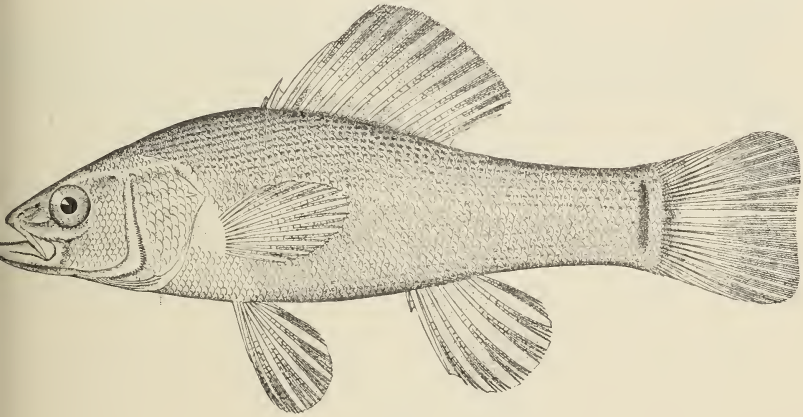

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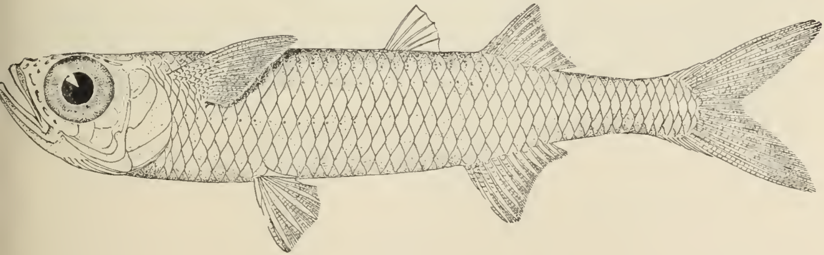
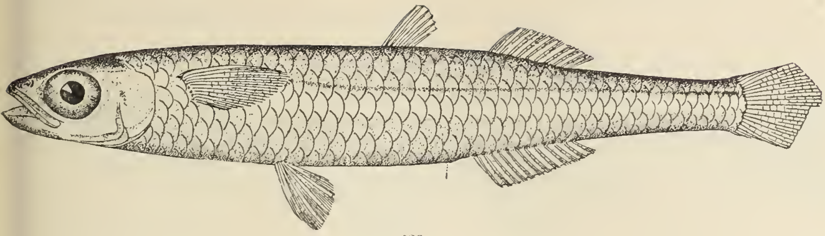


332

330. Columbia transmontana. (P. 784.)
331. Aphredoderus sayanus. (P. 786.)
332. Atherina stipes. (P. 790.)



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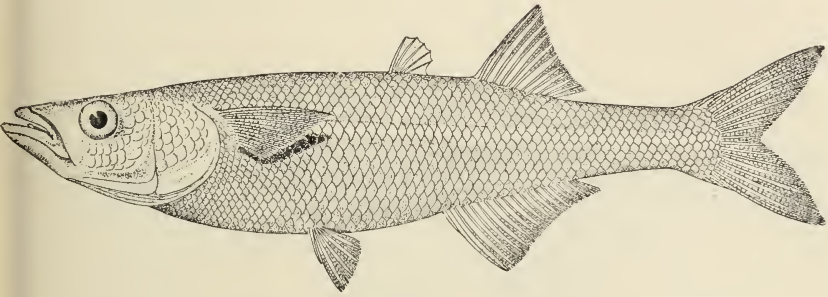

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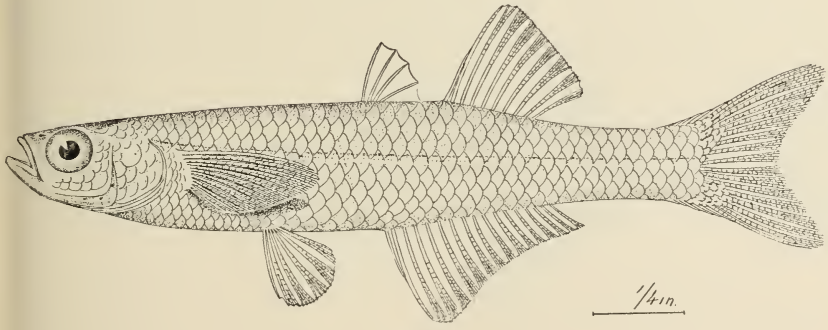
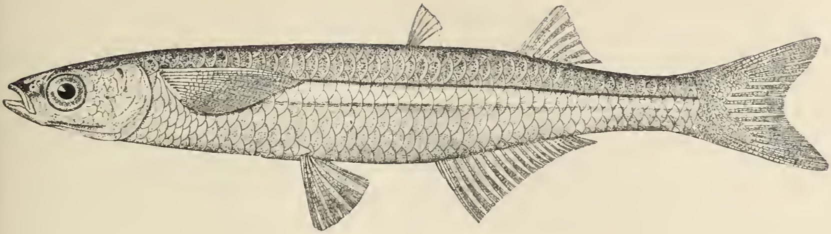


335

333. Atherina aræa. (P. 790.)
334. Chirostoma humboldtianum. (P. 793.)
335. Eslopsarum jordani. (Pp. 793, 2840.)



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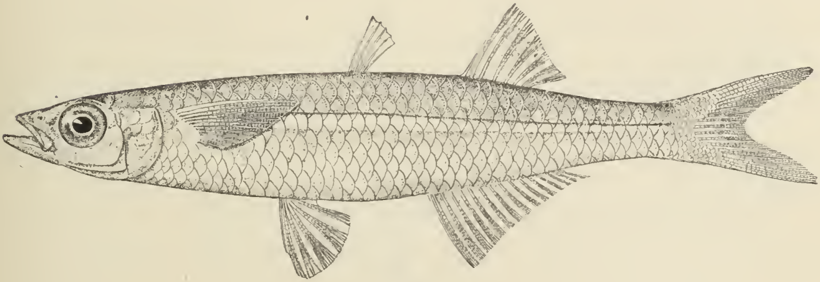

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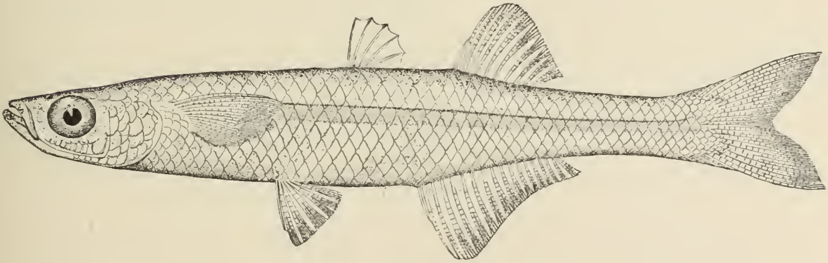
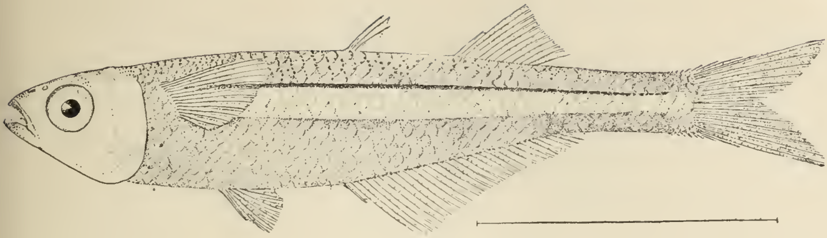


338

336. Kirtlandia vagrans. (P. 794.)
337. Menidia peninsulæ. (P. 797.)
338. Menidia gracilis beryllina. (P. 797.)



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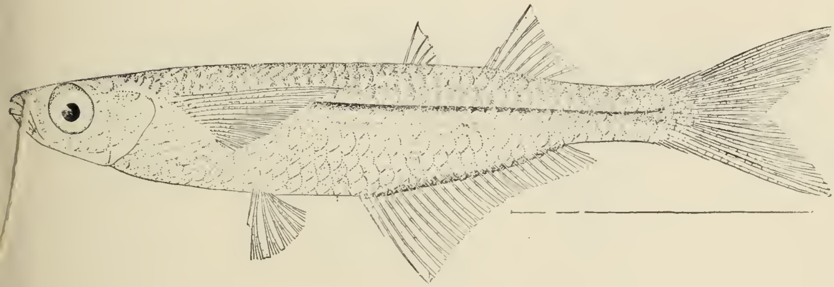

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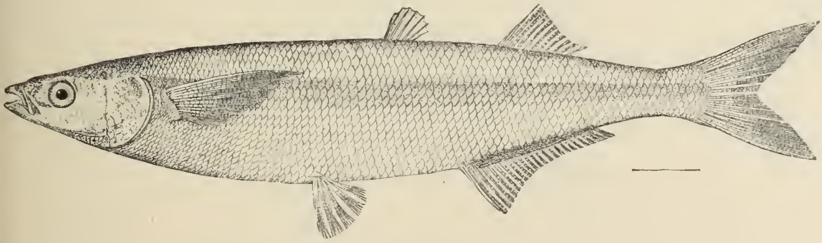
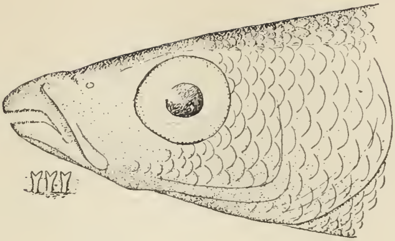


341

339. EURYSTOLE ERIARCHA. (P. 803.)
340. THYRINA EVERMANNI. (P. 804.)
341. ATHERINOPSIS CALIFORNIENSIS. (P. 806.)



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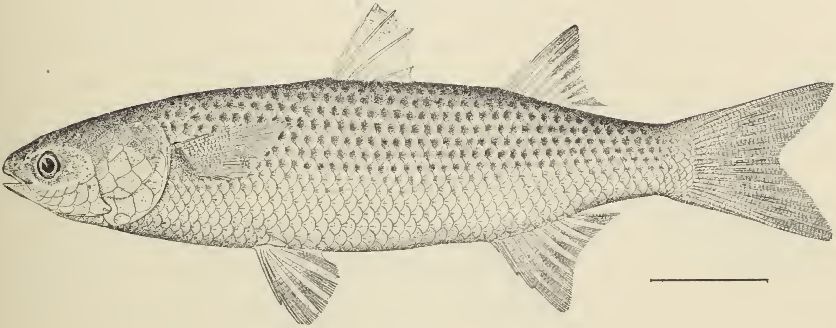

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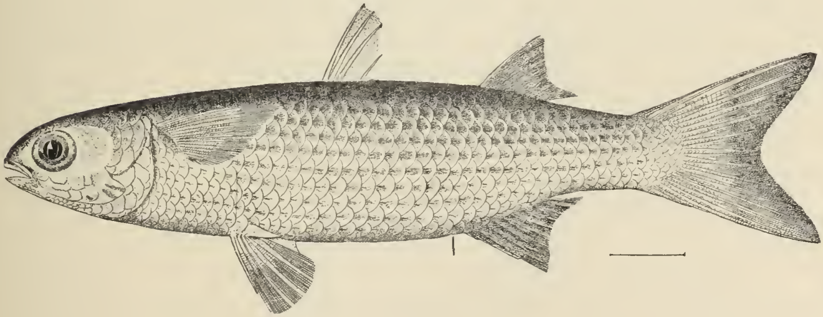
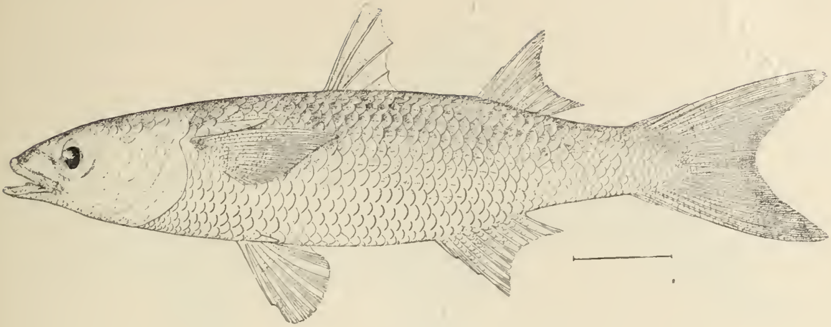


344

342. Atherinops affinis. (P. 807.)
343. Mugil cephalus. (P. 811.)
344. Mugil curema. (P. 813.)



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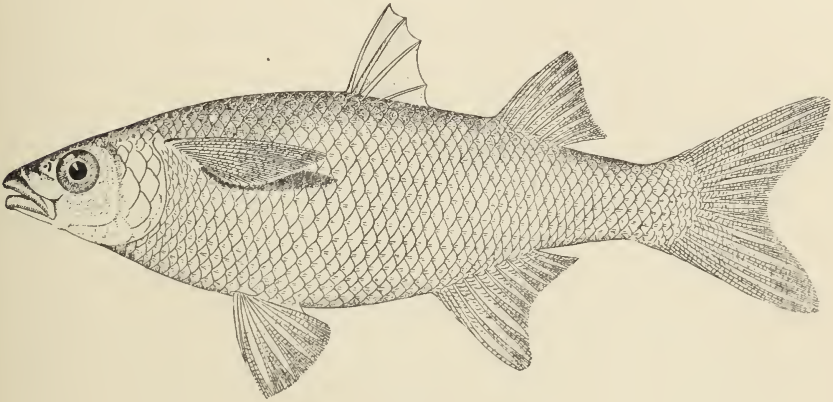

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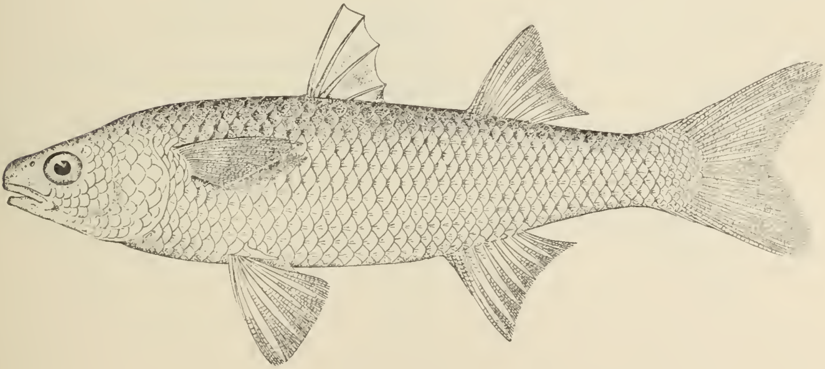

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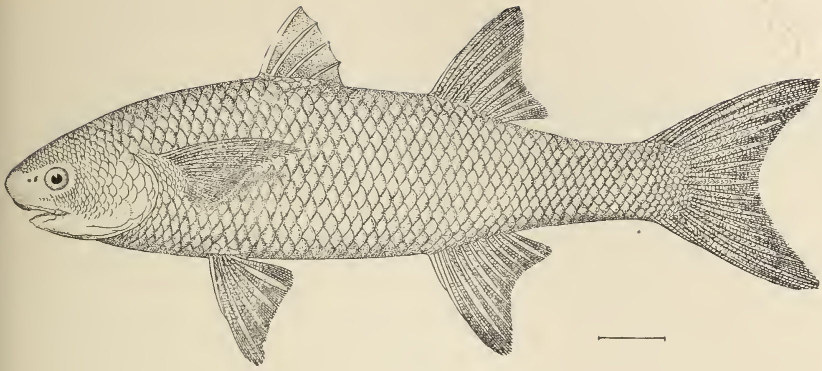
345. Mugil hospes. (P. 814.)
346. Chænomugil proboscideus. (P. 816.)
347. Agonostomus monticola. (P. 819.)



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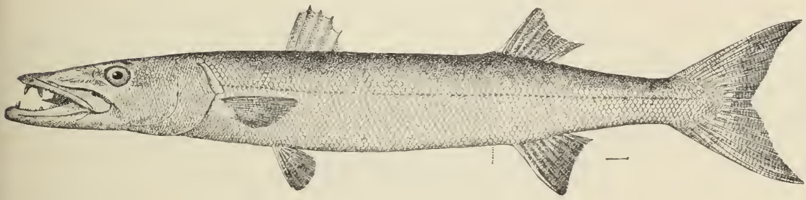

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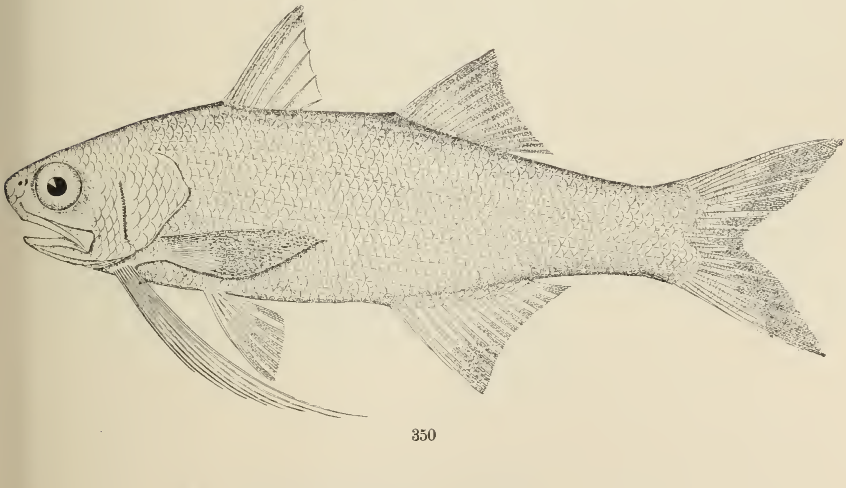

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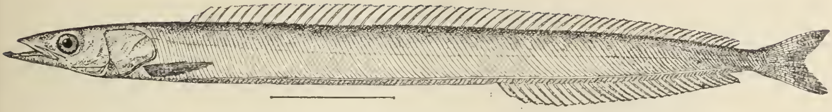
348. Joturus pichardi. (P. 821.)
349. Sphyræna barracuda. (Pp. 823, 2841.)
350. Polydactylus octonemus. (P. 830.)



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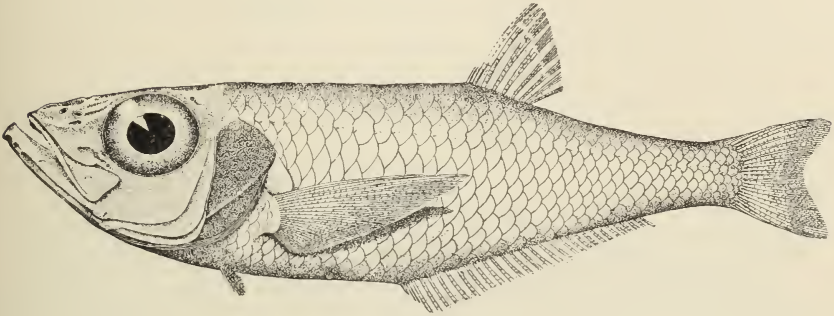

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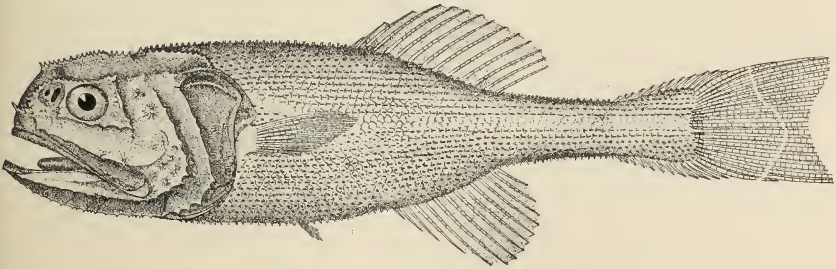

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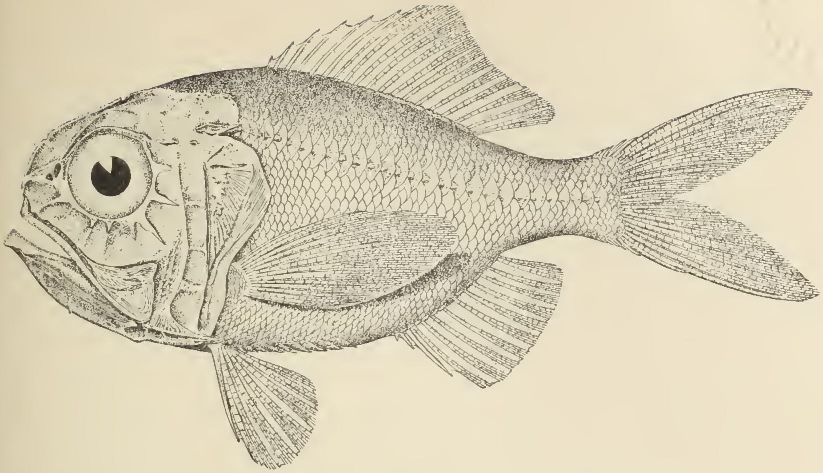
351. Ammodytes americanus. (P. 833.)
352. Bathyclupea argentea. (P. 835.)
353. Stephanoberyx monæ. (P. 836.)



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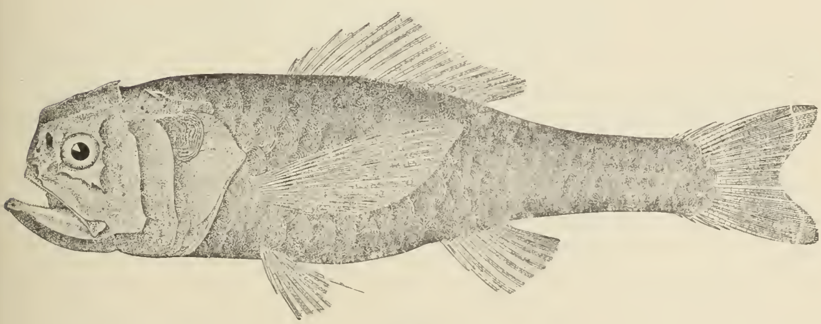

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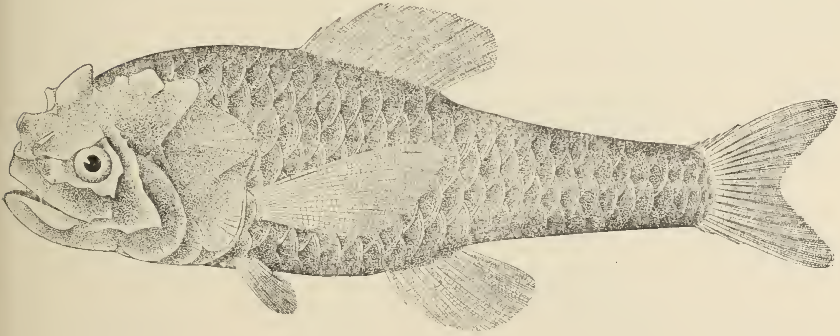

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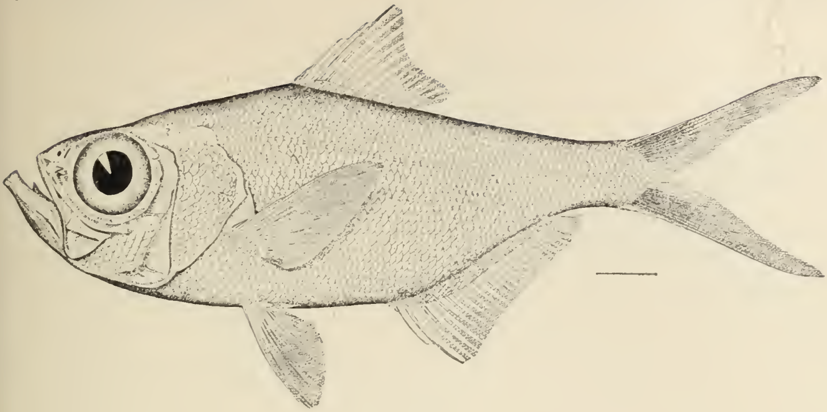
354. Hoplostethus mediterraneus. (P. 837.)
355. Plectromus suborbitalis. (P. 841.)
356. Plectromus crassiceps. (P. 843.)



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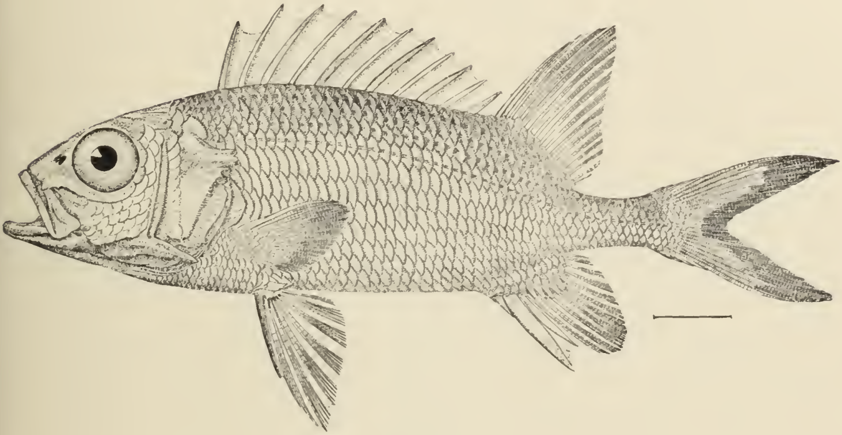

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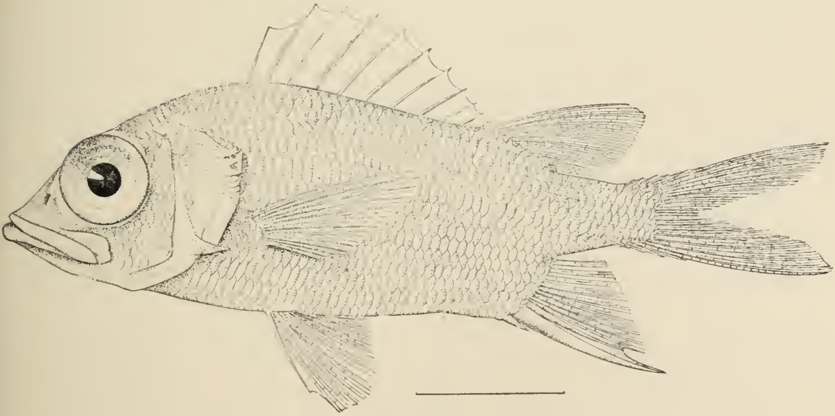

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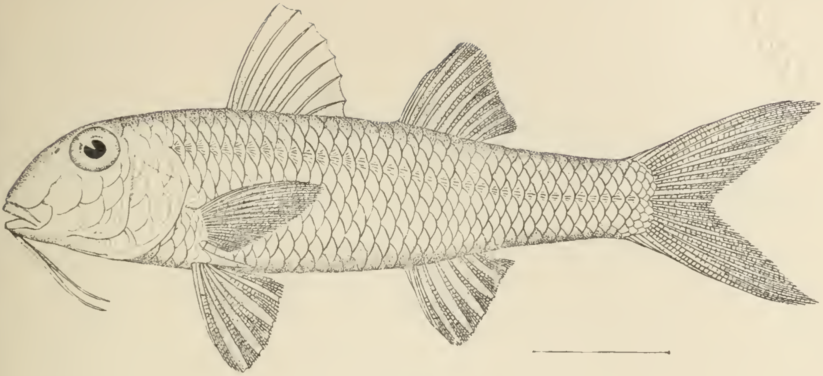
357. Beryx splendens. (P. 844.)
358. Holocentrus ascensionis. (P. 848.)
359. Flammeo marianus. (Pp. 852, 2871.)



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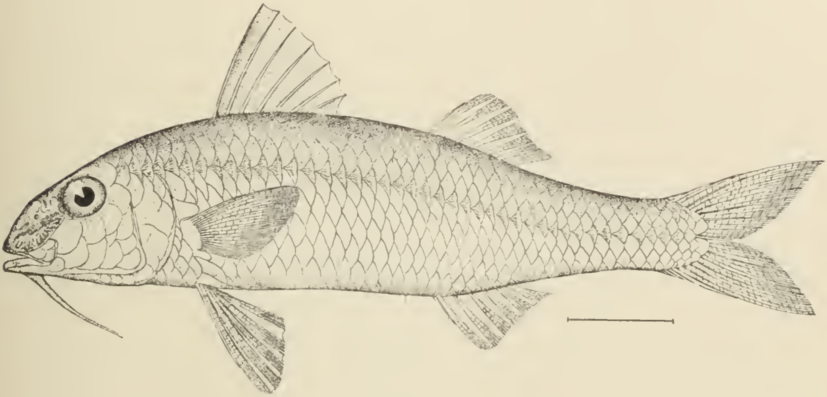

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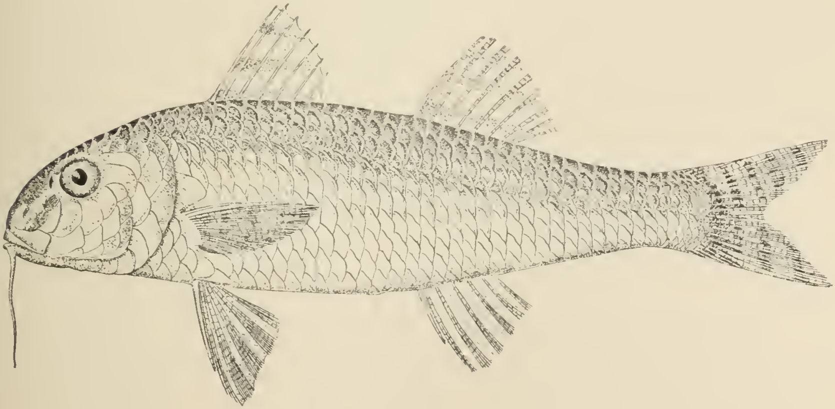

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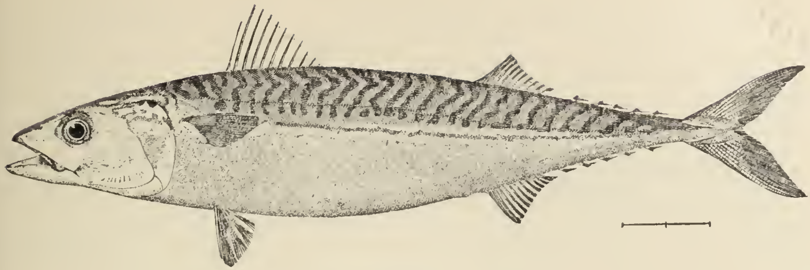
360. Mullus auratus. (P. 856.)
361. Mulloides rathbuni. (P. 857.)
362. Upeneus maculatus. (P. 858.)



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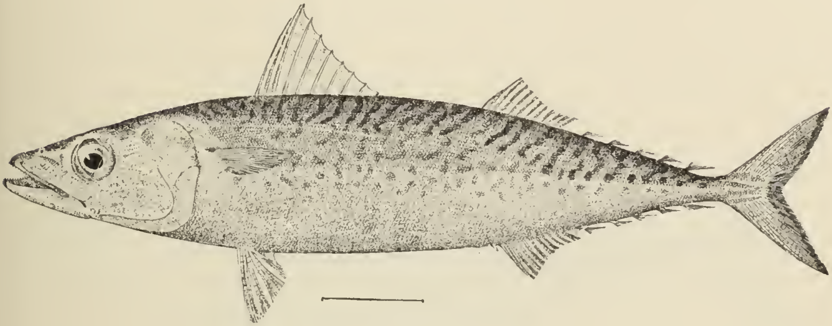

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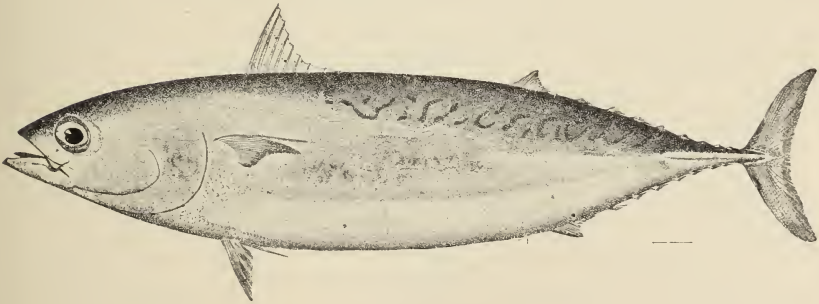

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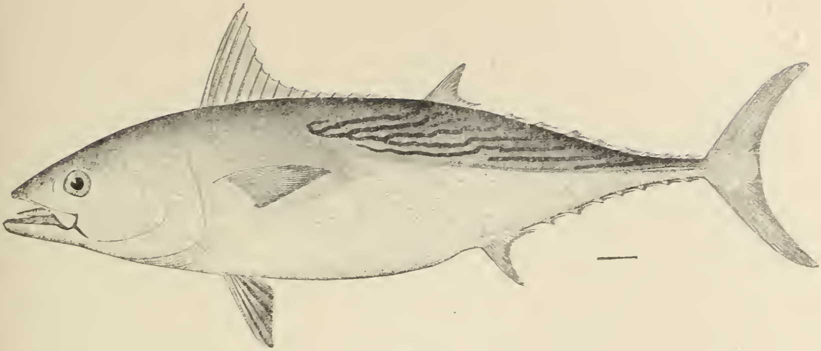
363. Scomber scombrus. (P. 865.)
364. Scomber colias. (P. 866.)
365. Auxis thazard. (P. 867.)



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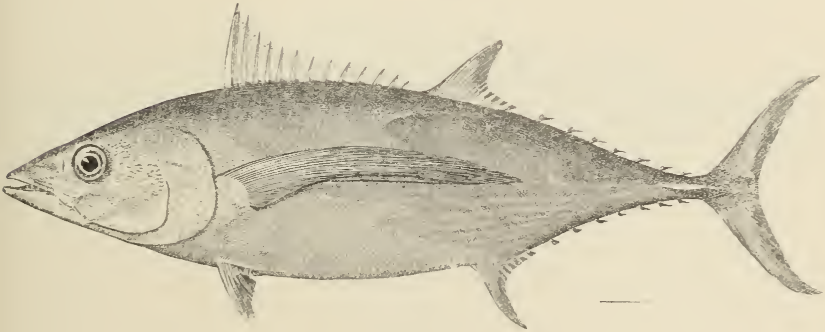

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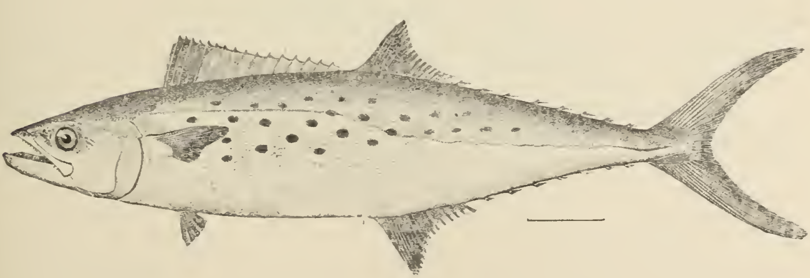
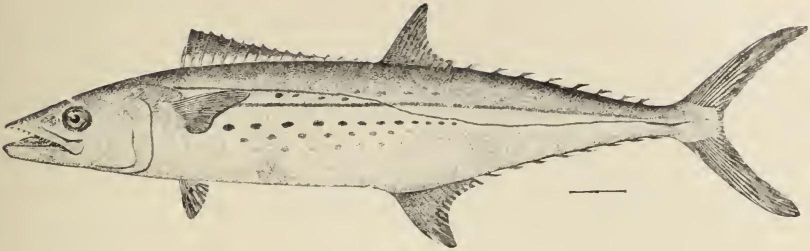


368

366. Gymnosarda alleterata. (P. 869.)
367. Germo alalunga. (P. 871.)
368. Scomberomorus maculatus. (P. 874.)



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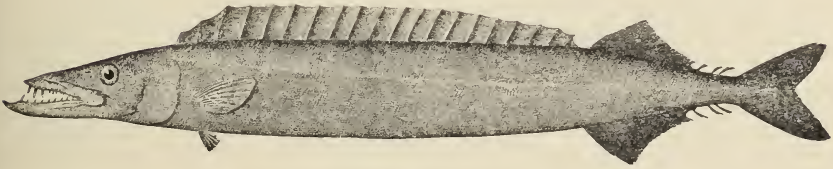

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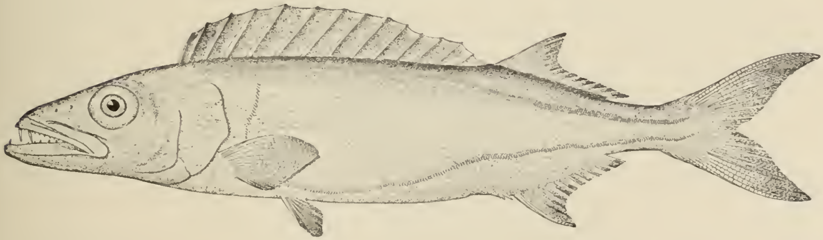

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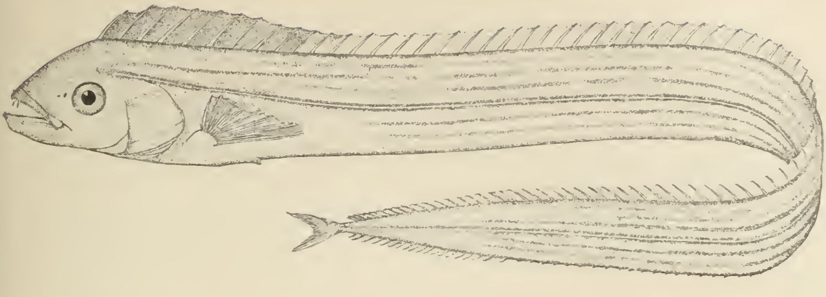
369. SCOMBEROMORUS REGALIS. (P. 875.)
370. ESCOLAR VIOLACEUS. (Pp. 878, 2843.)
371. EPINNULA MAGISTRALIS. (P. 880.)



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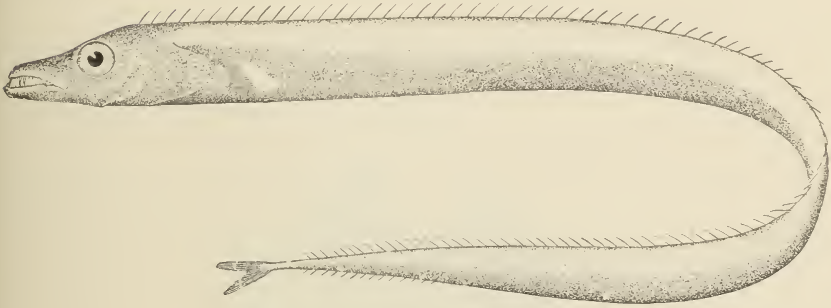

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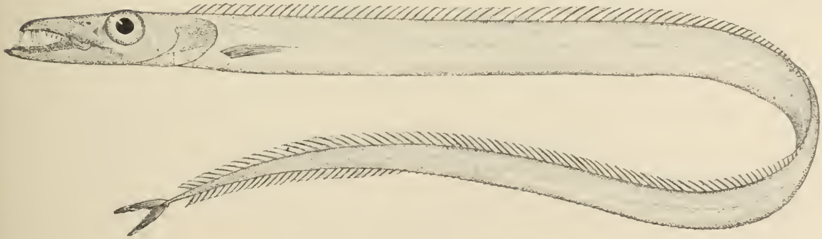

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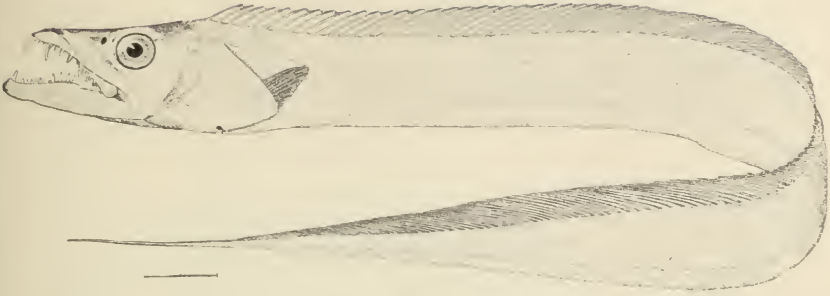
372. Evoxymetopon tæniatus. (P. 886.)
373. Lepidopus caudatus. (P. 886.)
374. Benthodesmus atlanticus. (P. 887.)



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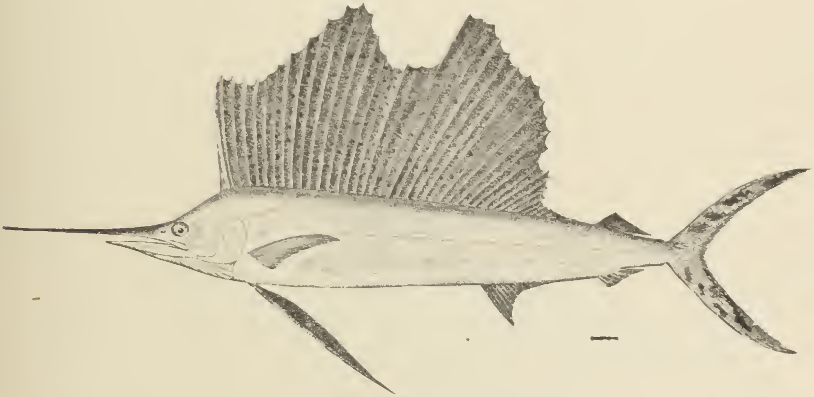

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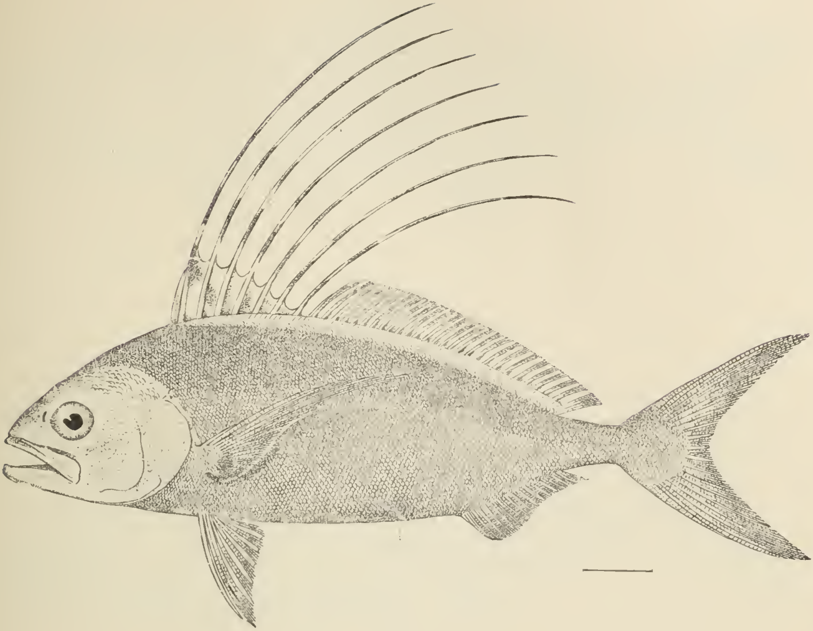
375. Trichiurus lepturus. (P. 889.)
376. Istiophorus nigricans. (P. 891.)



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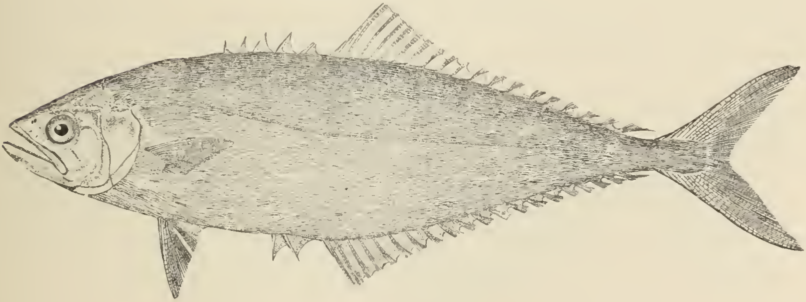

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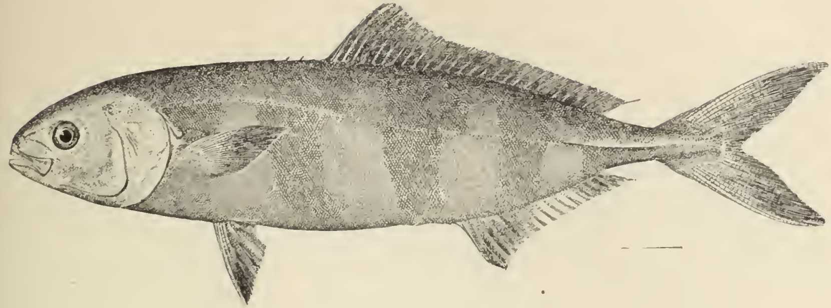
377. NEMATISTIUS PECTORALIS. (P. 895.)
378. OLIGOPLITES SAURUS. (P. 898.)



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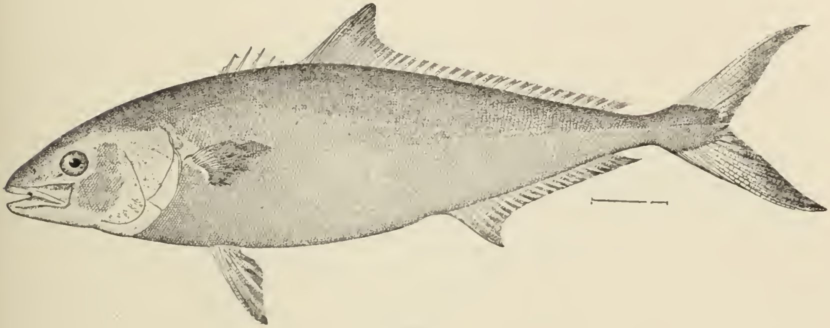

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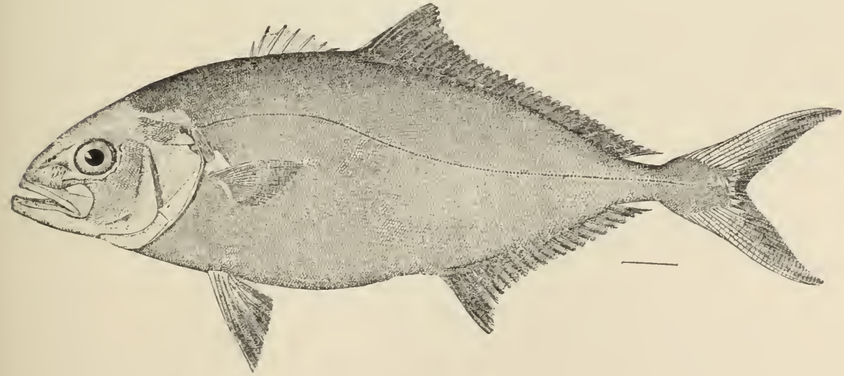

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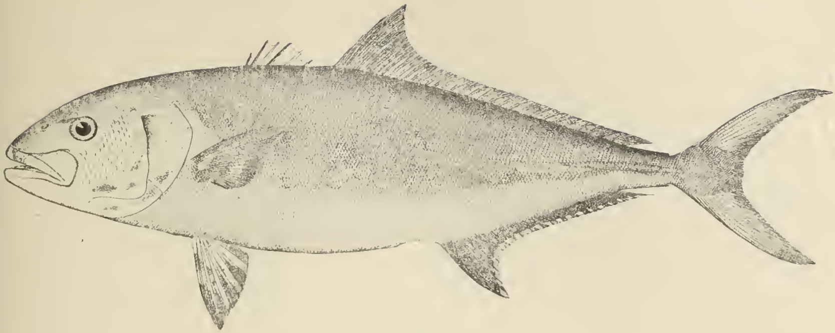
379. Naucrates ductor. (P. 900.)
380. Seriola dorsalis. (P. 902.)
381. Seriola zonata. (P. 902.)



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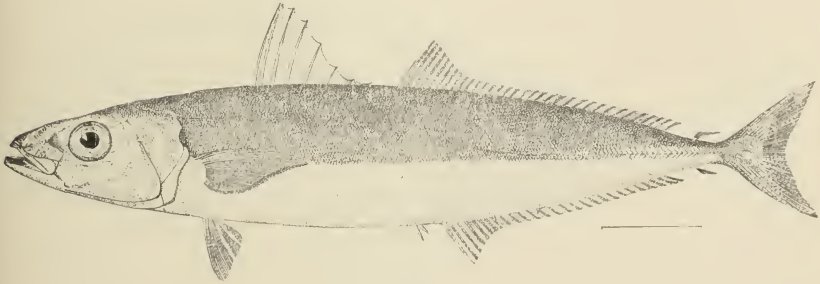

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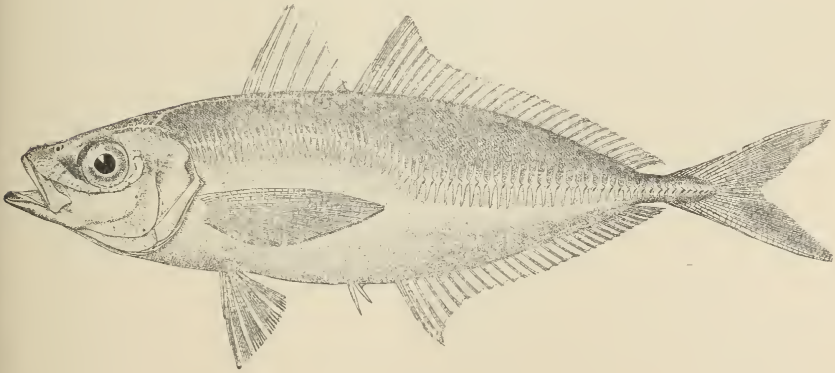

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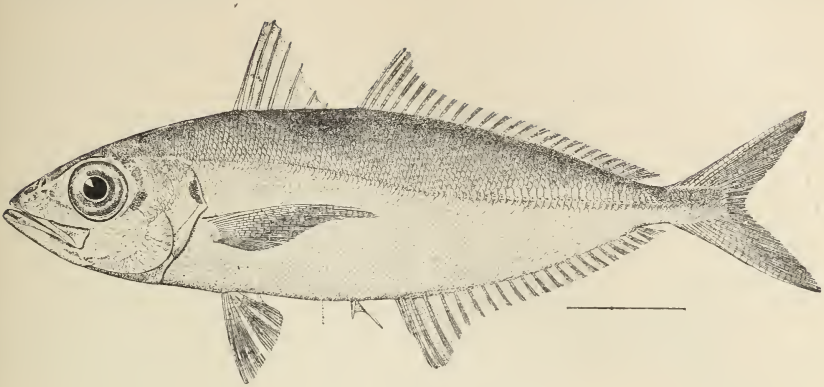
382. Seriola lalandi. (P. 903.)
383. Decapterus macarellus. (P. 909.)
384. Trachurus trachurus. (P. 910.)



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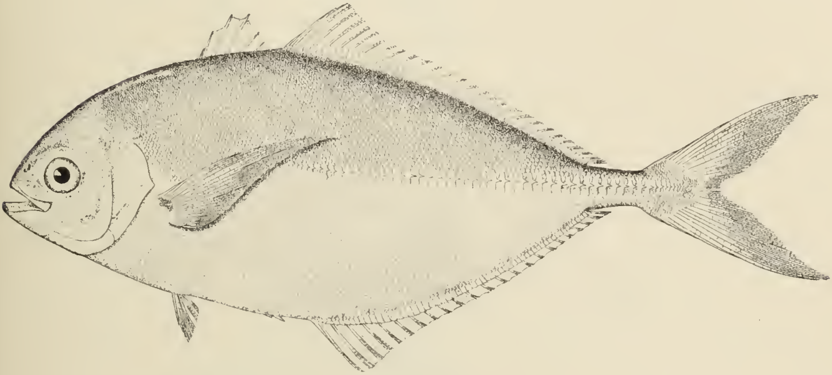

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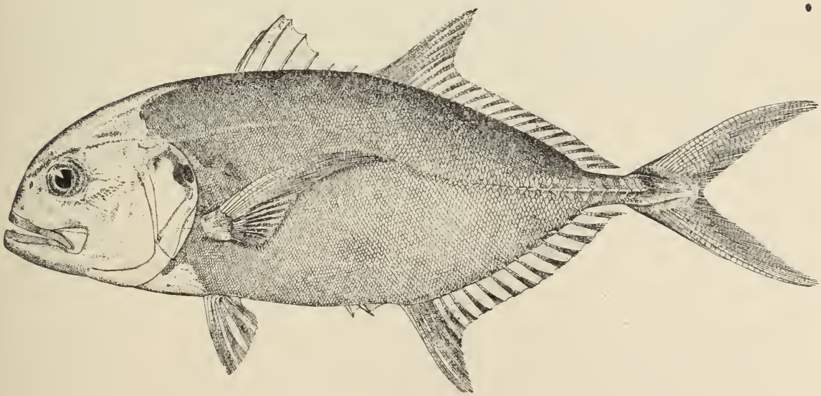

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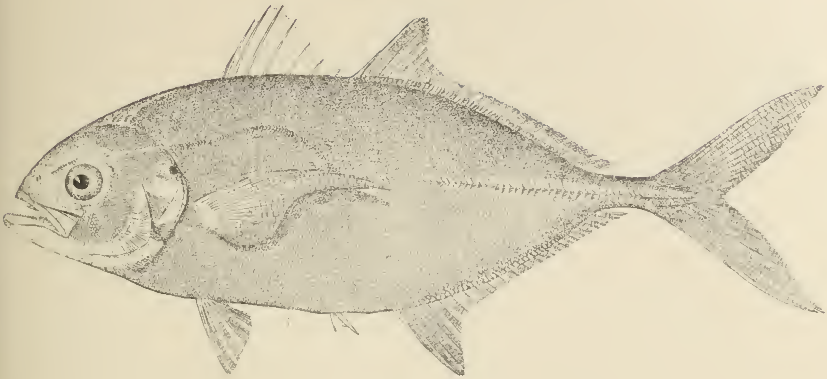
385. Trachurops crumenophthalmus. (P. 911.)
386. Hemicaranx amblyrhynchus. (P. 912.)
387. Caranx hippos. (P. 920.)



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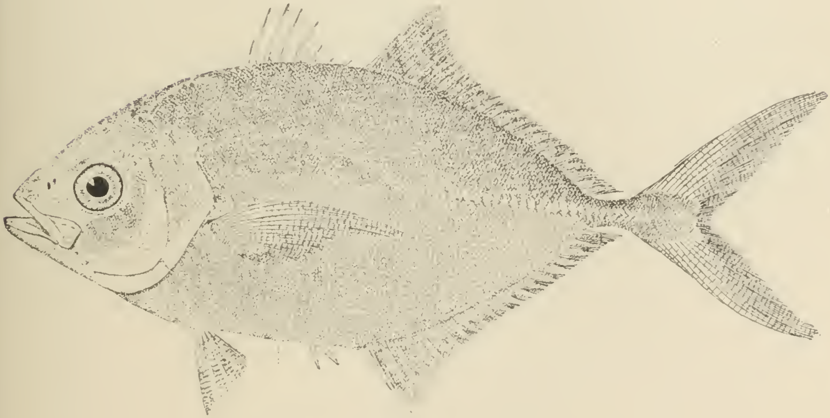

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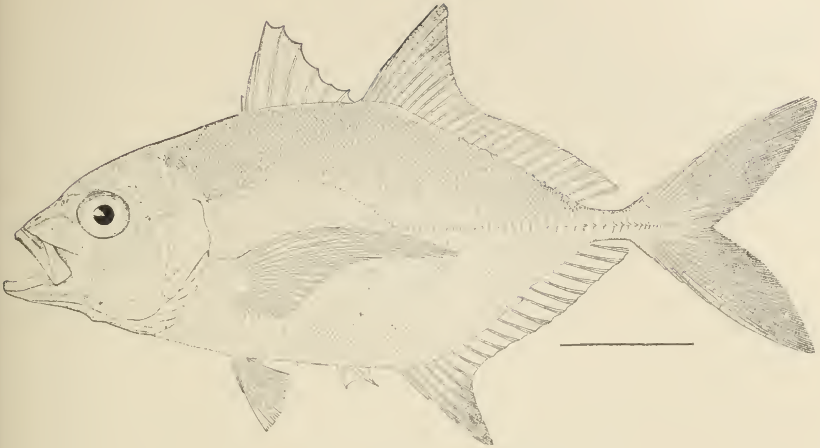
388. Caranx crysos. (P. 921.)
389. Caranx latus. (P. 923.)



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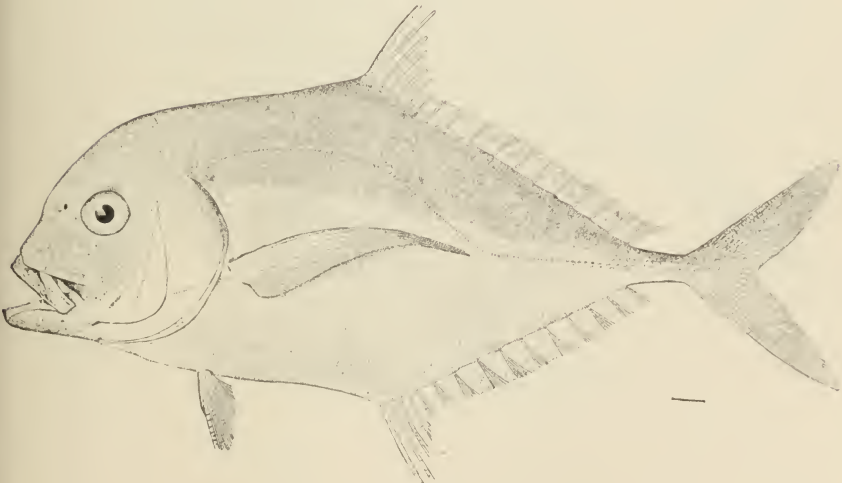

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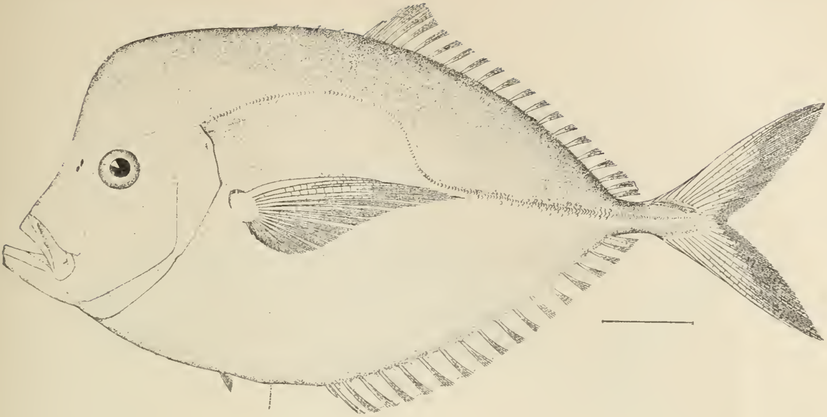
390. Caranx medusicola. (P. 924.)
391. Hynnis hopkinsi. (P. 933.)



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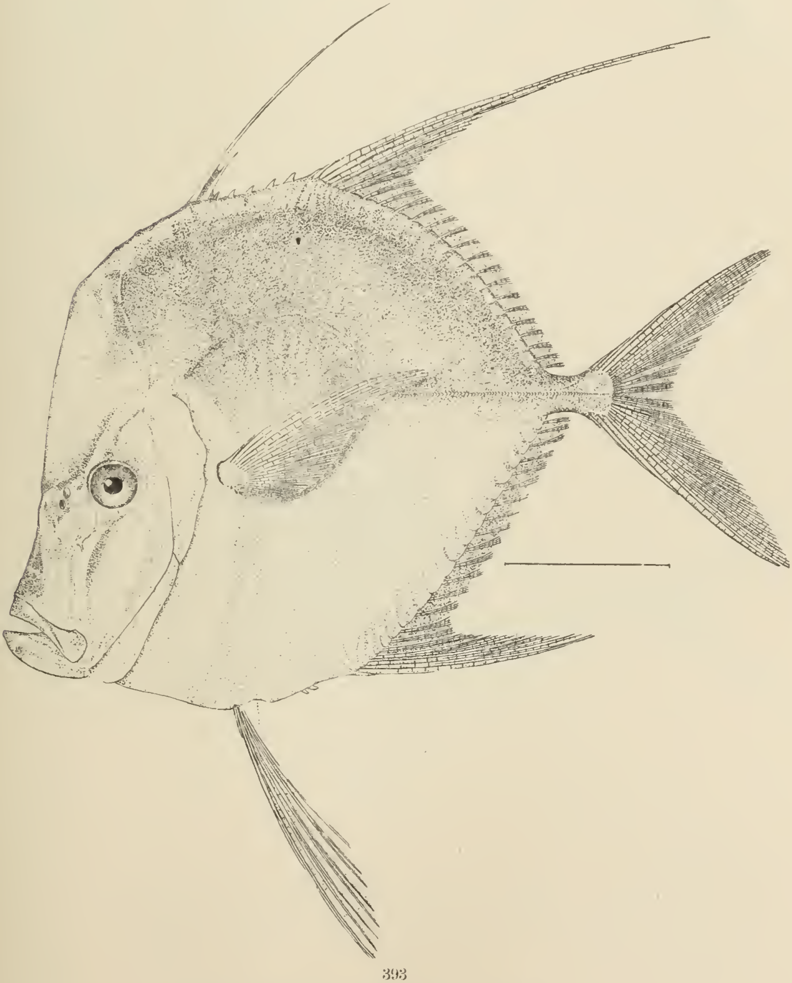
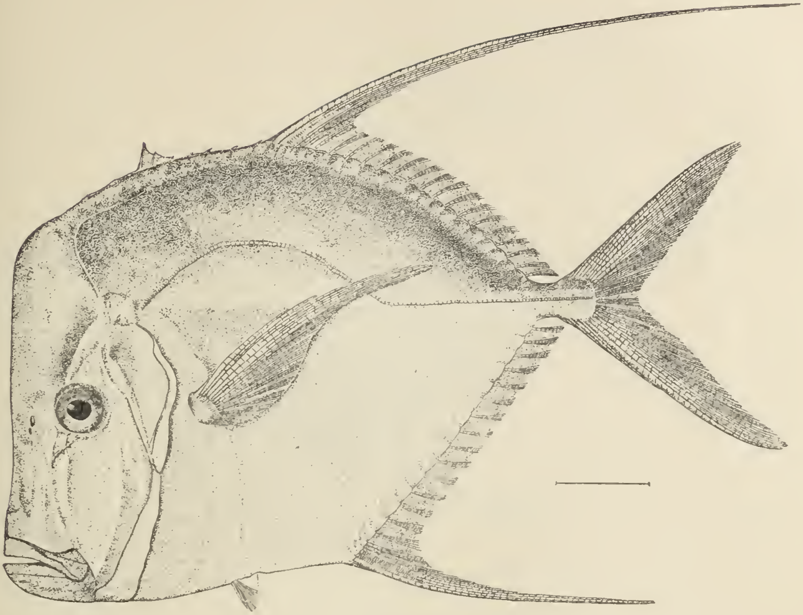


393

392. Vomer setipinnis. (P. 934.)
393. Selene vomer; young. (P. 936.)



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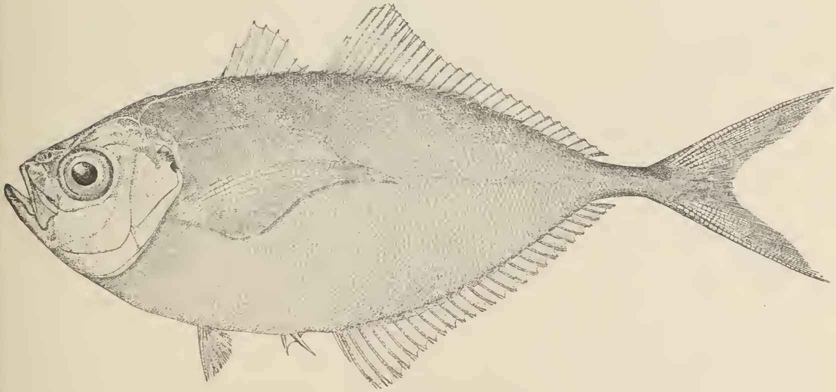

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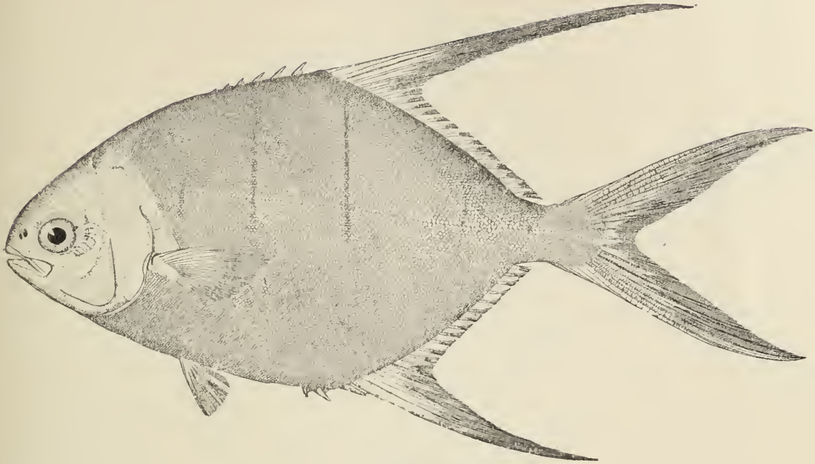
393*a*. SELENE VOMER; adult. (P. 936.)
394. CHLOROSCOMBRUS CHRYSURUS. (P. 938.)



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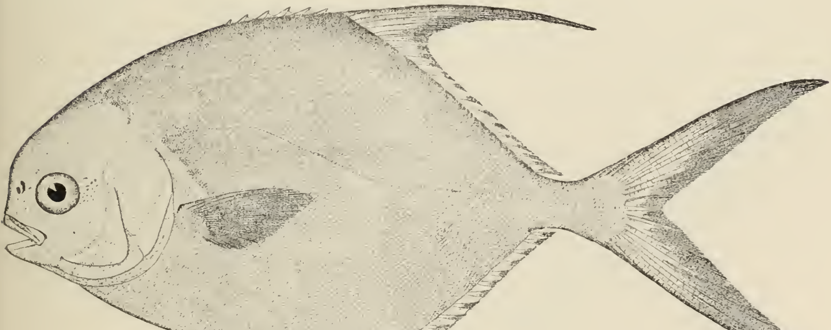
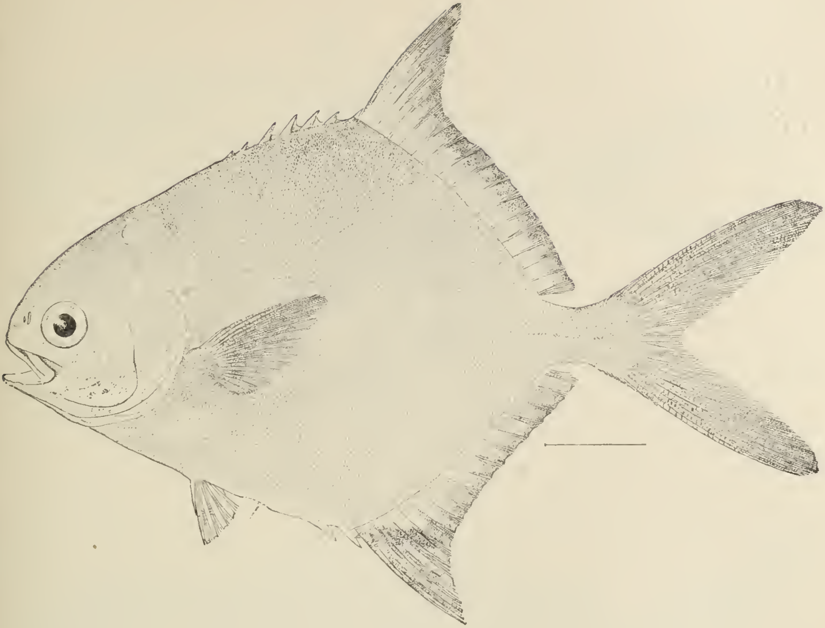


396

395. Trachinotus glaucus. (P. 940.)
396. Trachinotus falcatus. (P. 941.)



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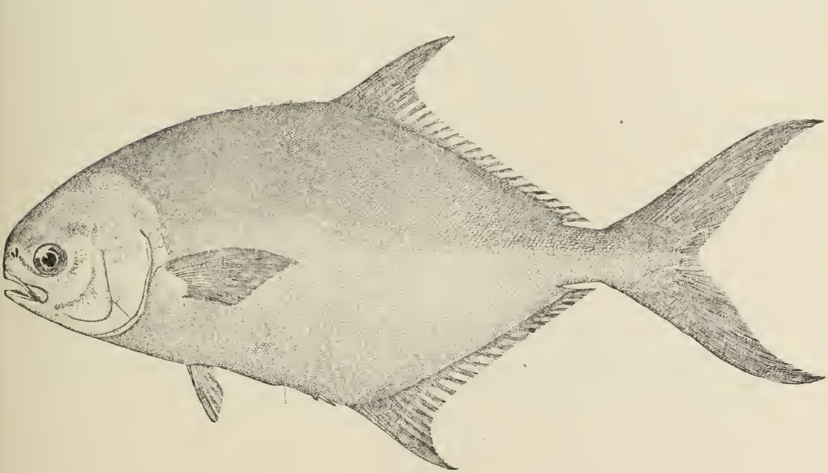

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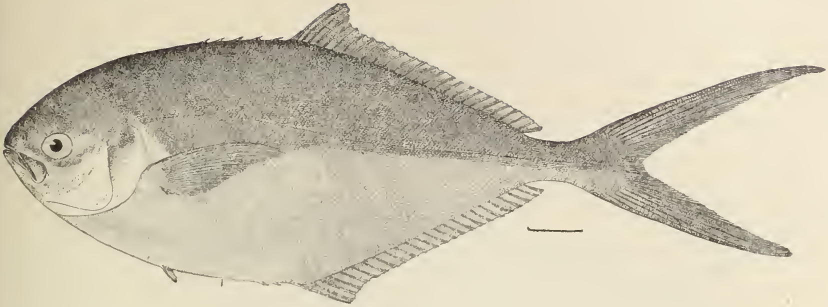
397. Trachinotus culveri. (P. 942.)
398. Trachinotus carolinus. (P. 944.)



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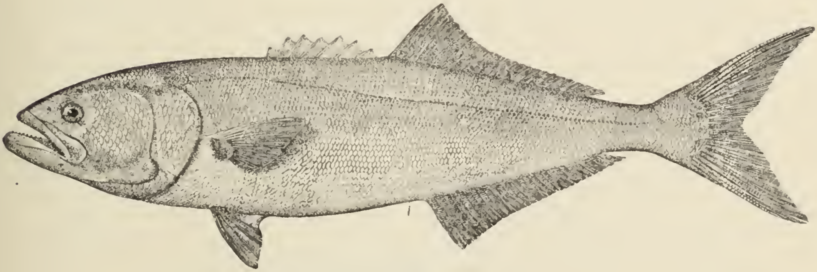

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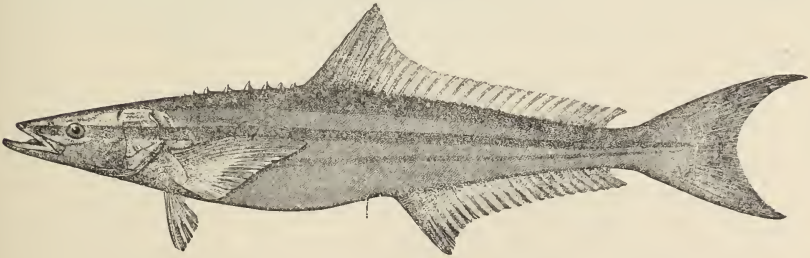
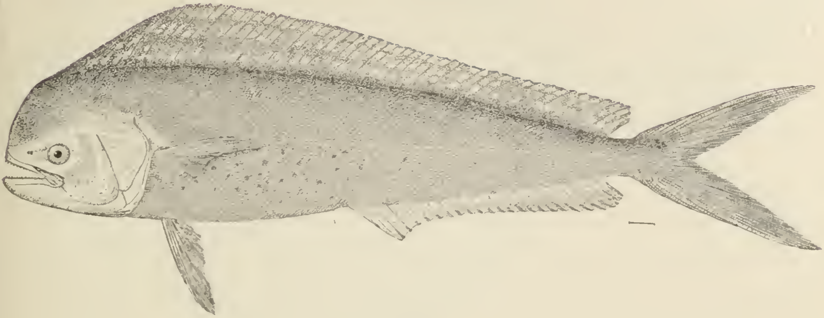


401

399. Zalocys stilbe. (P. 2848.)
400. Pomatomus saltatrix. (P. 946.)
401. Rachycentron canadus. (P. 948.)



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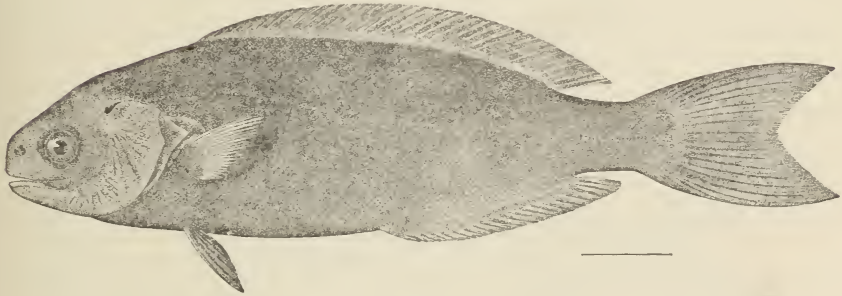
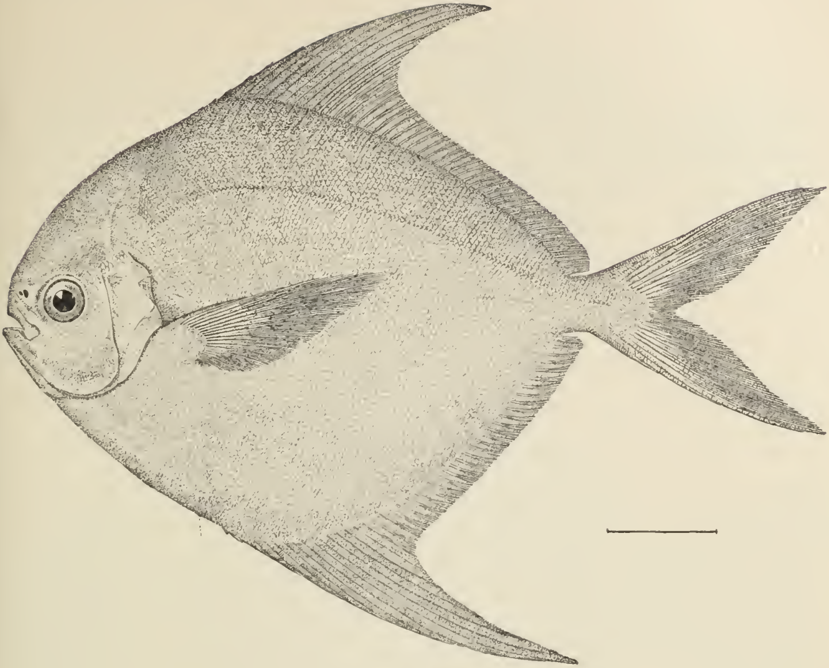


403

402. Coryphæna hippurus. (P. 952.)
403. Centrolophus niger. (P. 963.)



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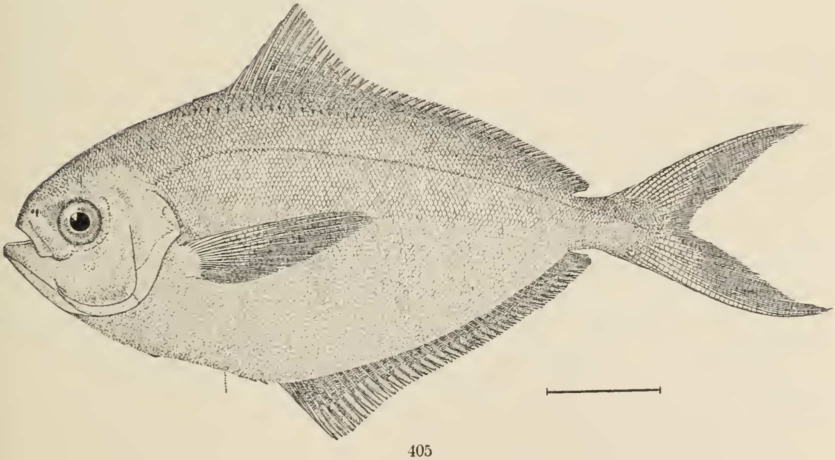

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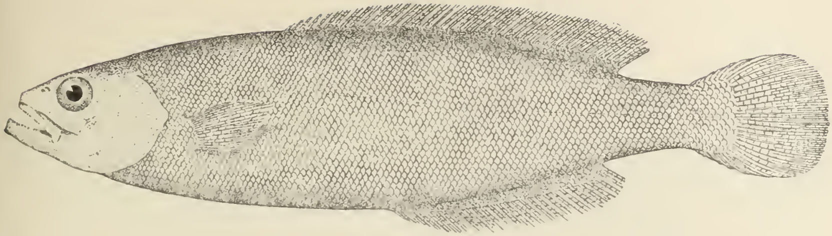
404. Rhombus paru. (P. 965.)
405. Poronotus triacanthus. (Pp. 967, 2849.)



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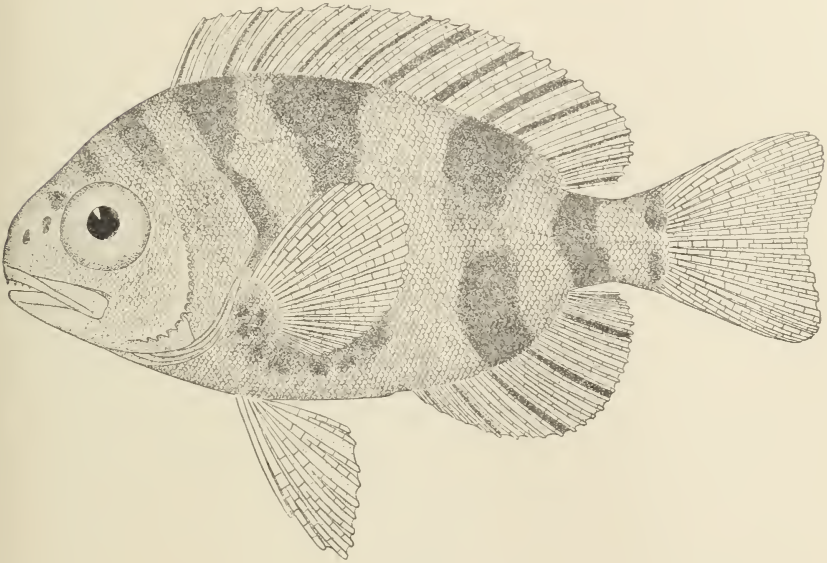

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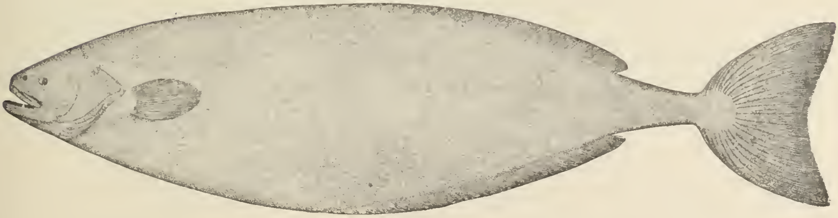
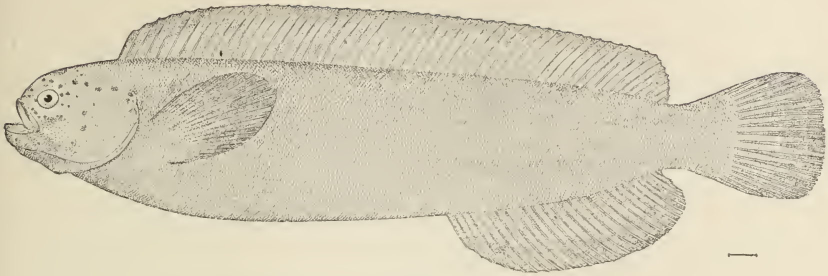


408

406. Icichthys lockingtoni. (P. 969.)
407. Schedophilus medusophagus. (P. 970.)
408. Acrotus willoughbyi. (P. 973.)



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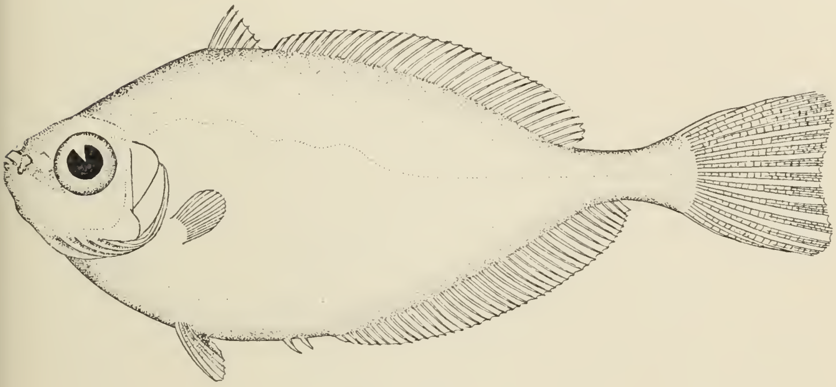

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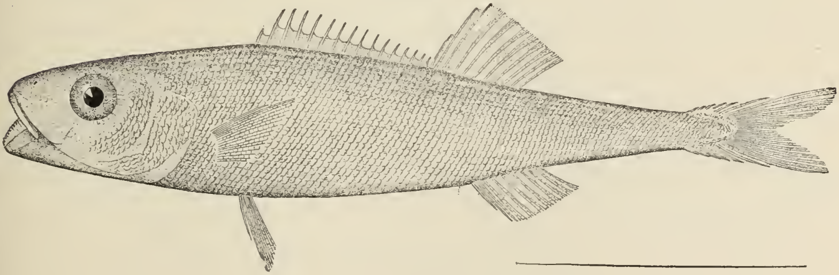
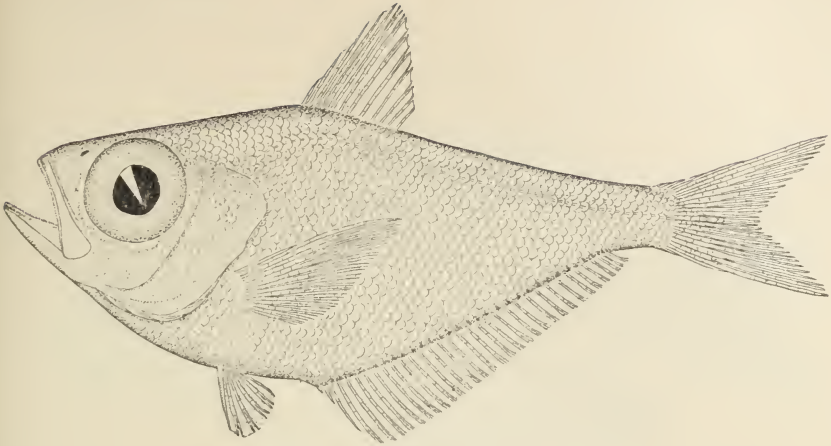


411

409. Zaprora silenus. (P. 2850.)
410. Grammicolepis brachiusculus. (P. 974.)
411. Tetragonurus cuvieri. (P. 976.)



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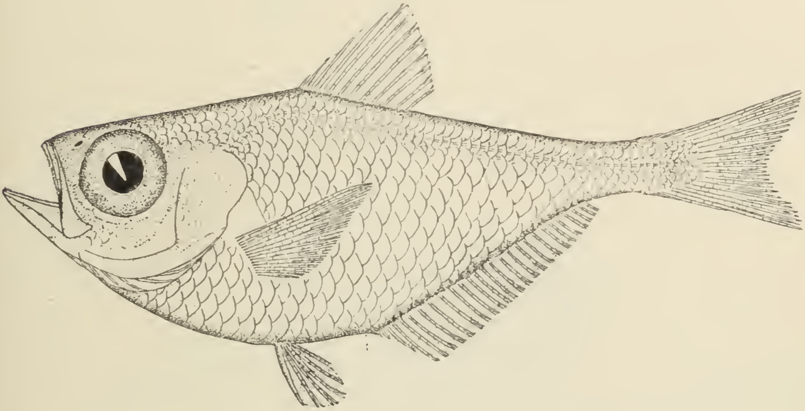

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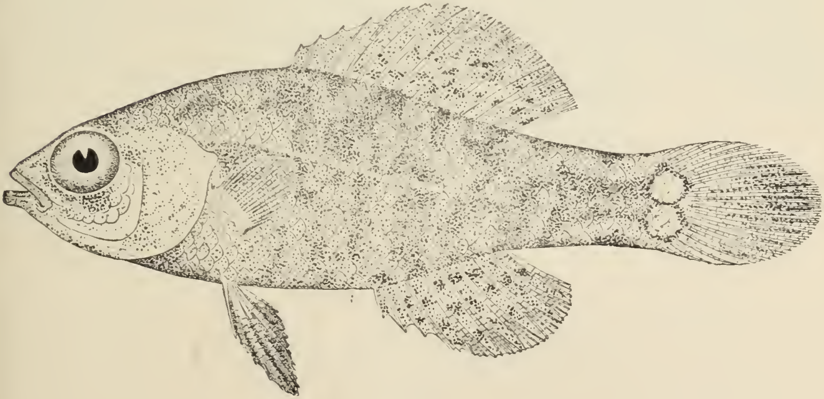
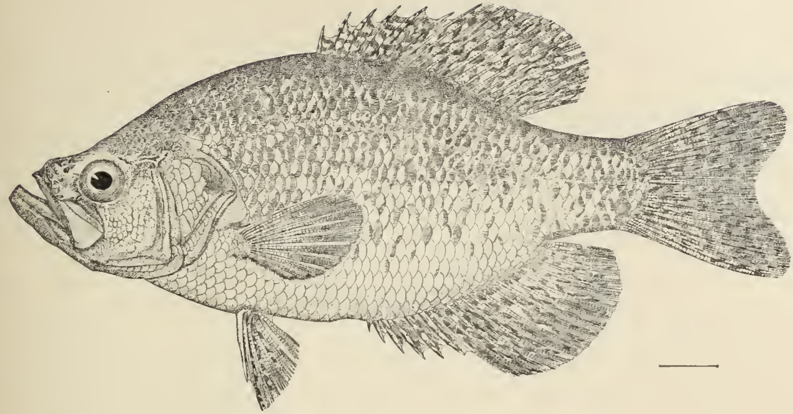


414

412. PEMPHERIS MULLERI. (P. 978.)
413. PEMPHERIS POEYI. (P. 979.)
414. ELASSOMA EVERGLADEI. (P. 982.)



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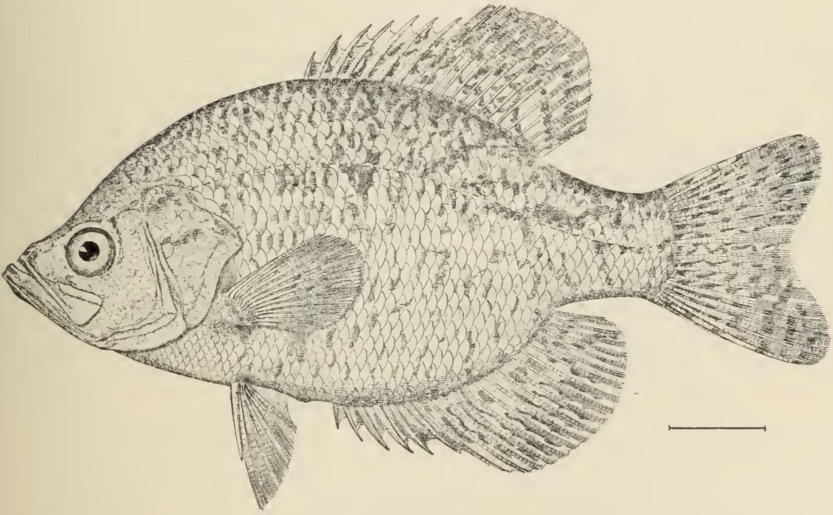
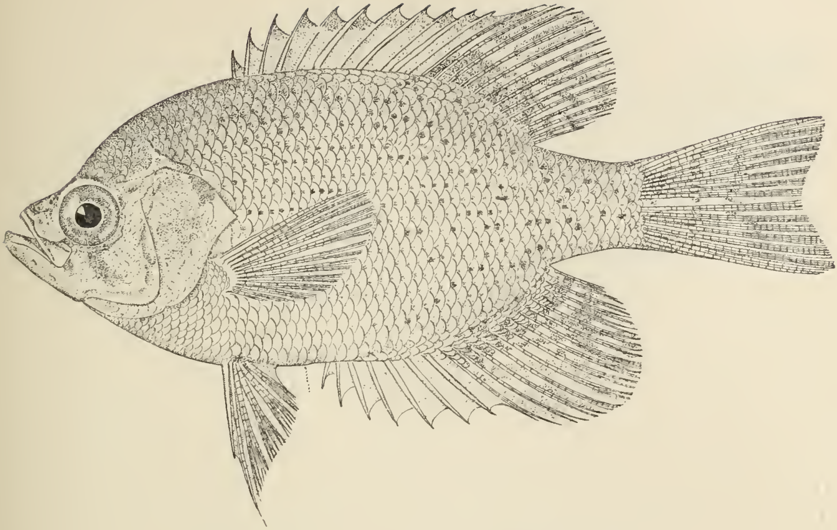


416

415. Pomoxis annularis. (P. 987.)
416. Pomoxis sparoides. (P. 987.)



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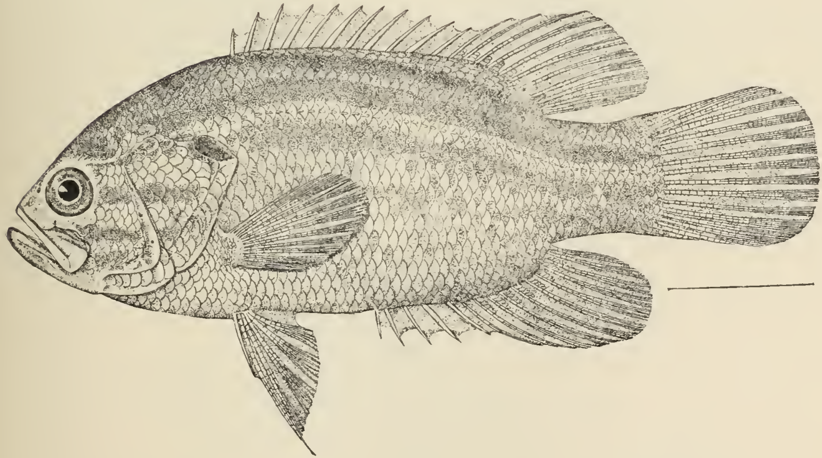
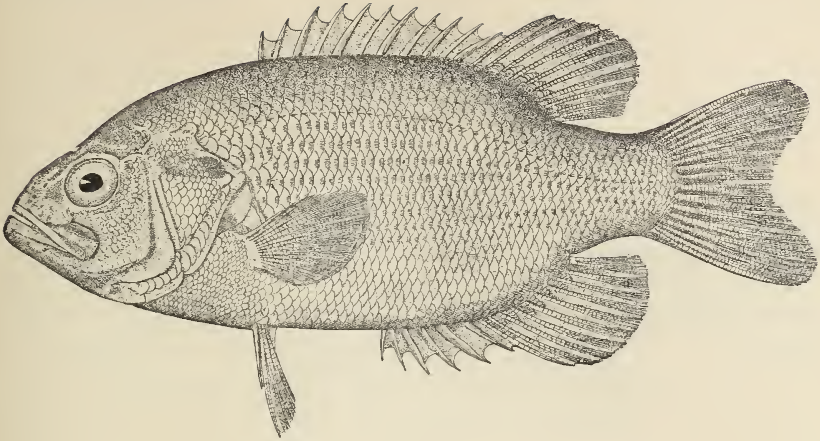


418

417. Centrarchus macropterus. (P. 988.)
418. Acantharchus pomotis. (P. 989.)



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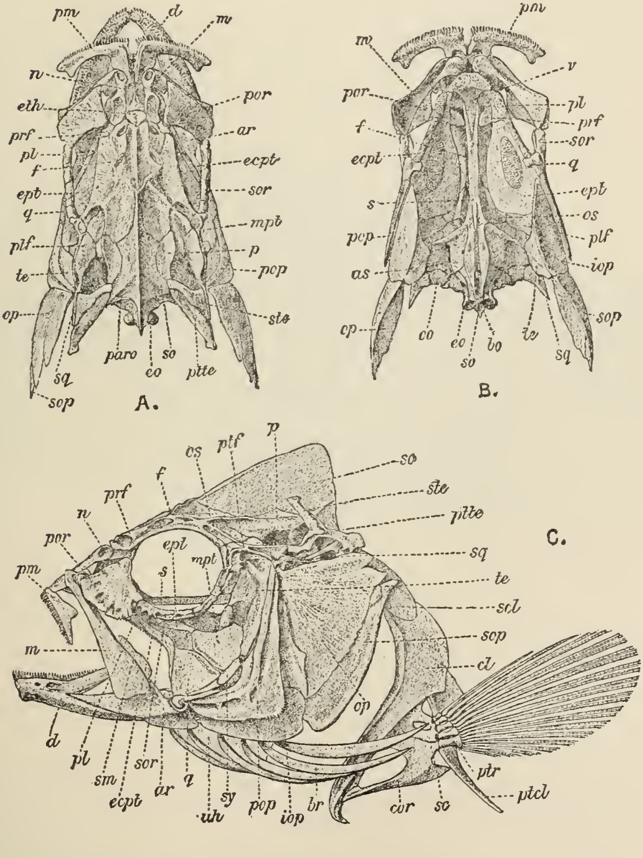
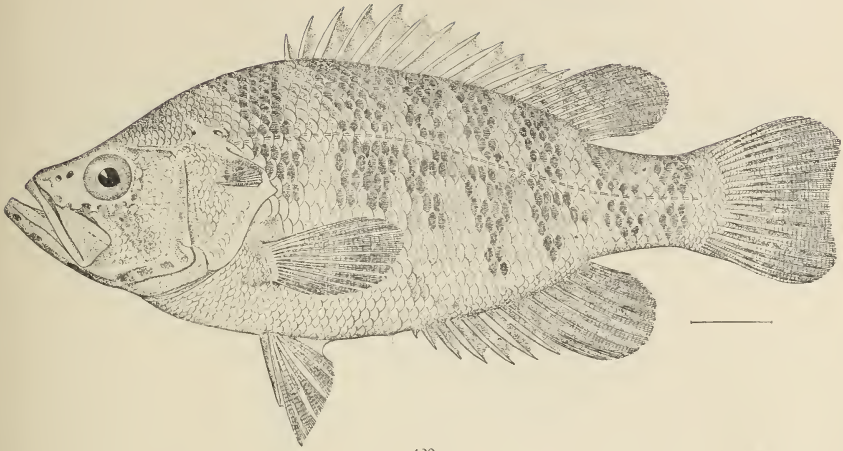


419. Ambloplites rupestris. (P. 990.)
A, *B*, *C*. Skull of Ambloplites rupestris. (P. 990.)



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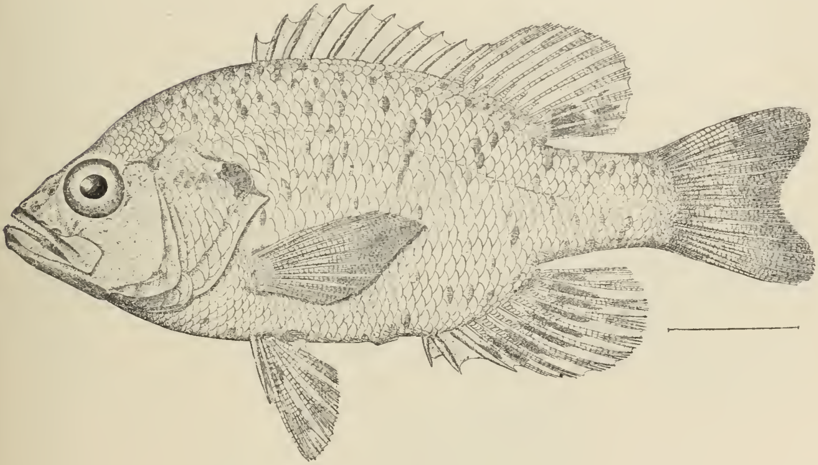
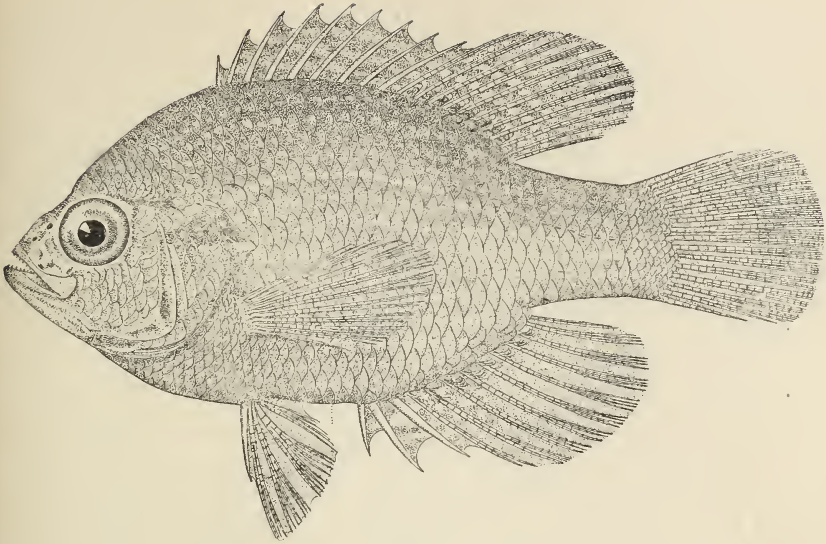


421

420. ARCHOPLITES INTERRUPTUS. (P. 991.)
421. CHÆNOBRYTTUS GULOSUS. (P. 992.)



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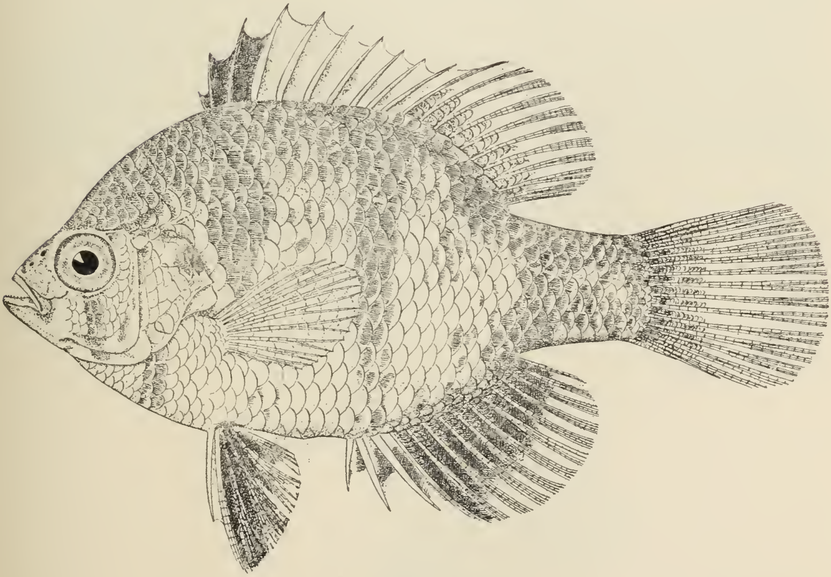
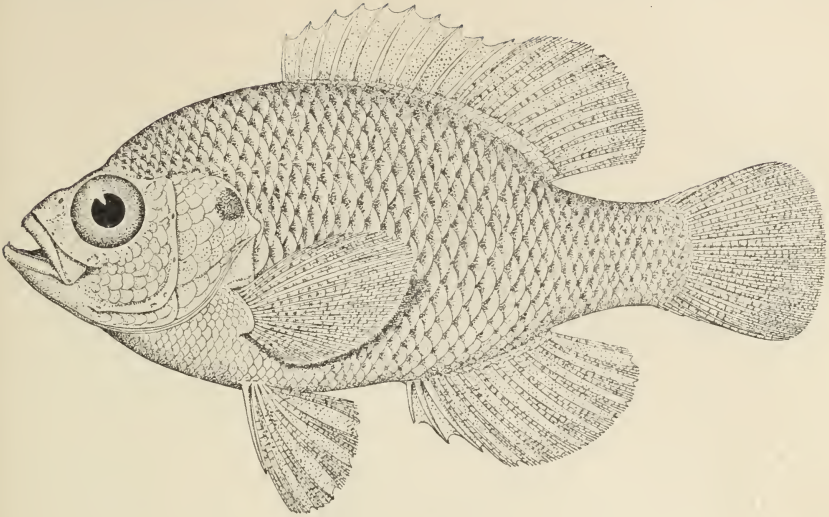


423

422. Enneacanthus gloriosus. (P. 993.)
423. Mesogonistius chætodon. (P. 995.)



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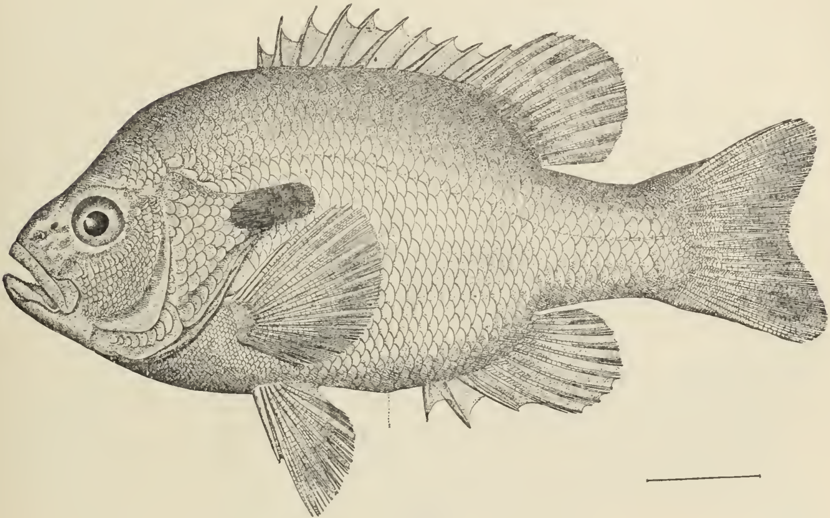

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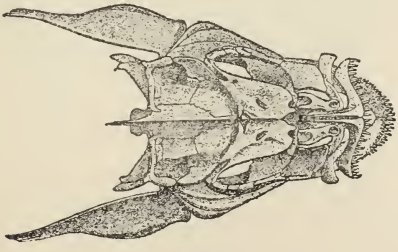
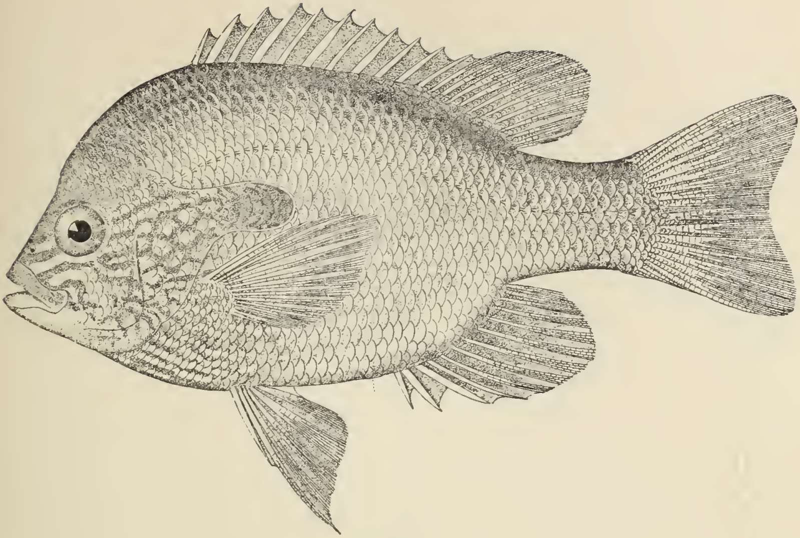


425*a*

424. Apomotis symmetricus. (P. 998.)
425. Lepomis auritus. (P. 1001.)
425*a*. Skull of Lepomis auritus. (P. 1001.)



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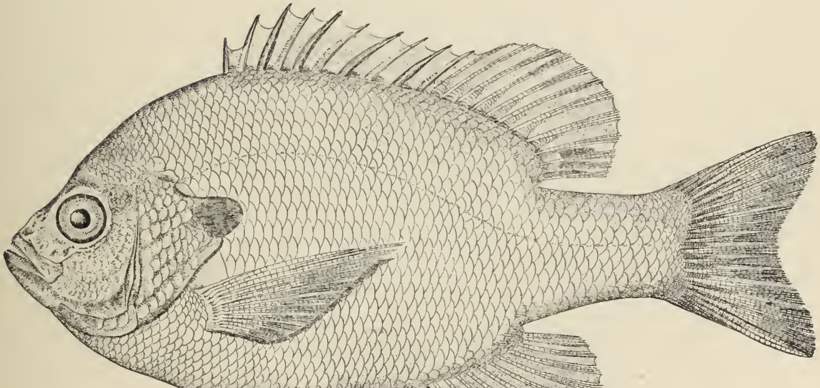
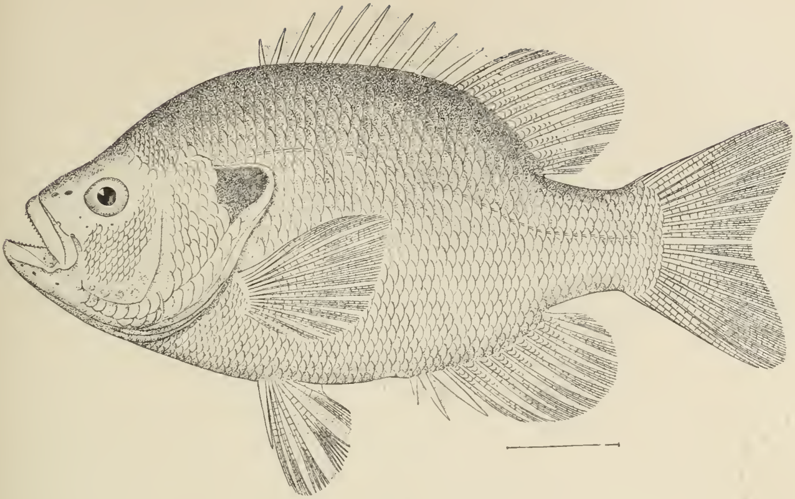


427

426. Lepomis megalotis. (P. 1002.)
427. Lepomis pallidus. (P. 1005.)



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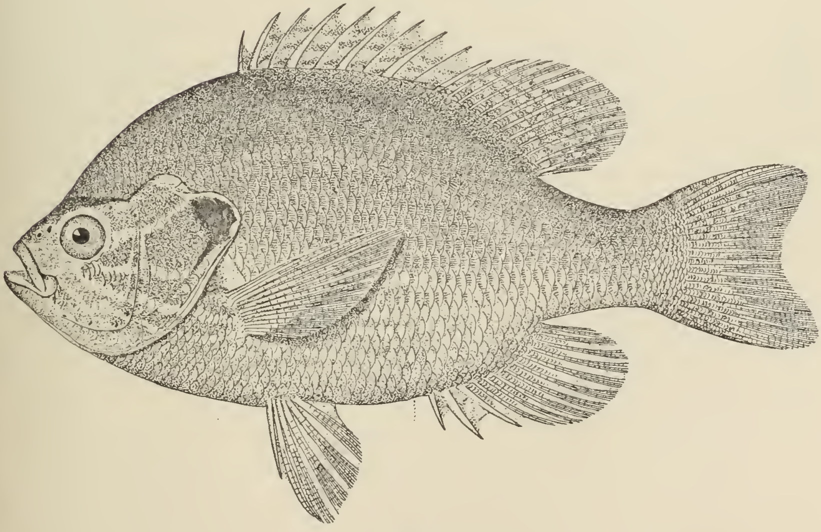
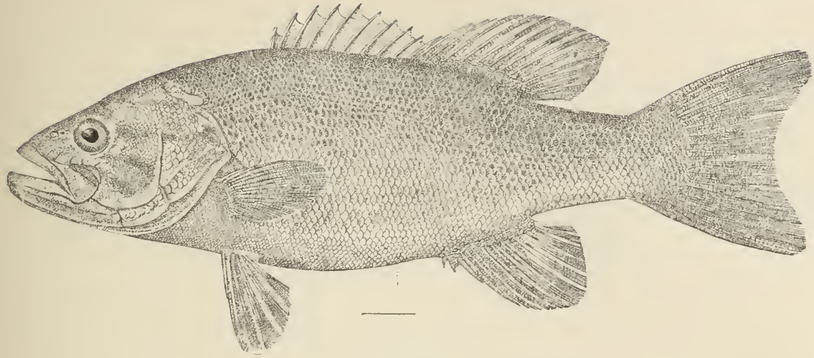


429

428. EUPOMOTIS EURYORUS. (P. 1008.)
429. EUPOMOTIS GIBBOSUS. (P. 1009.)



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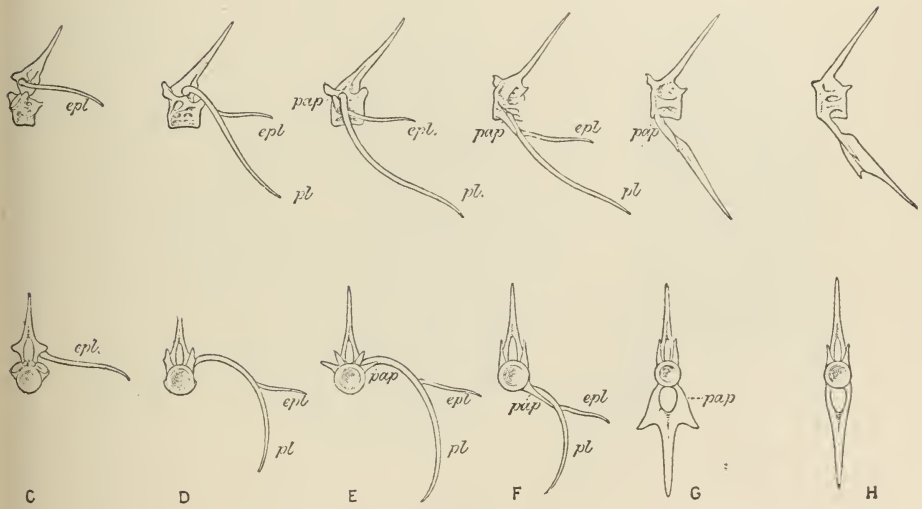
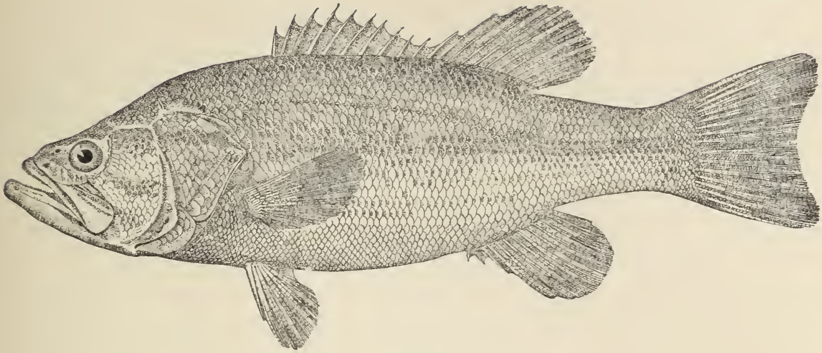


430*a*

430. MICROPTERUS DOLOMIEU. (P. 1011.)
430*a*. VERTEBRÆ OF MICROPTERUS DOLOMIEU. (P. 1011.)



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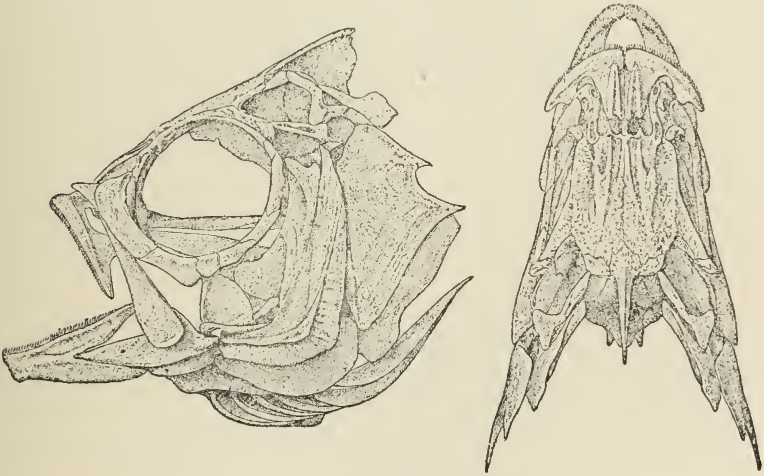
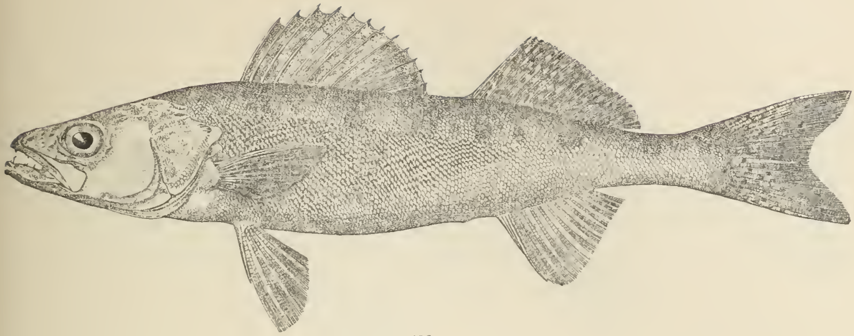


432

431. Micropterus salmoides. (P. 1012.)
432. Skull of Kuhlia rupestris.



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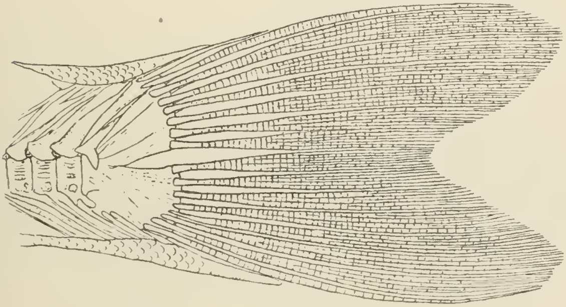
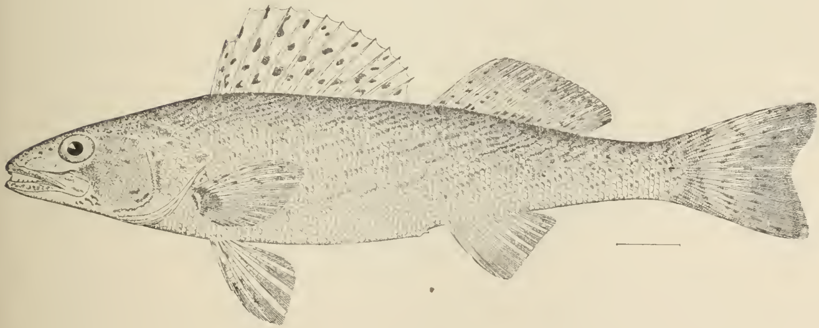
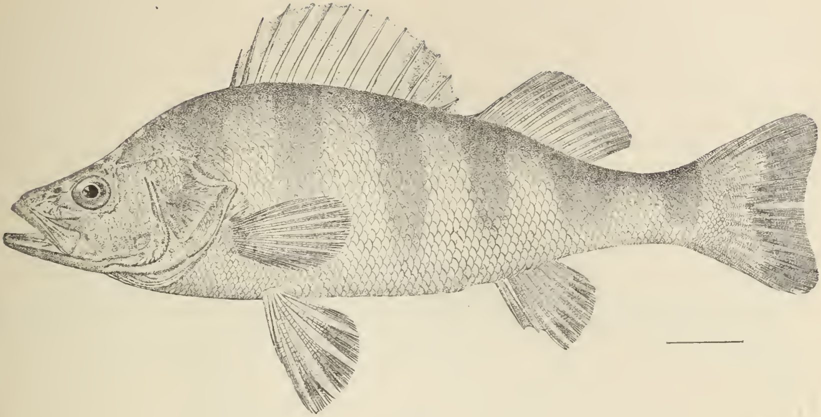


433*a*



434

433. Stizostedion vitreum. (P. 1021.)
433*a*. Tail of Stizostedion vitreum. (P. 1021.)
434. Stizostedion canadense. (P. 1022.)



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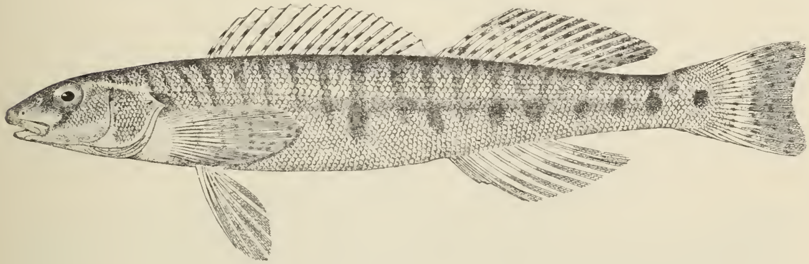

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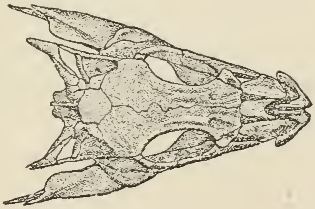
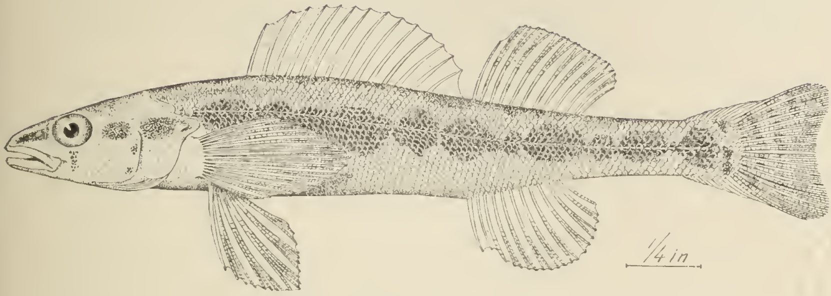


436*a*

435. Perca flavescens. (P. 1023.)
436. Percina caprodes. (P. 1026.)
436*a*. Skull of Percina caprodes. (P. 1026.)



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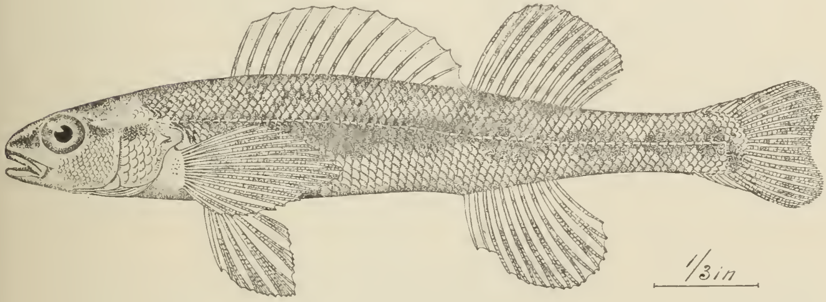
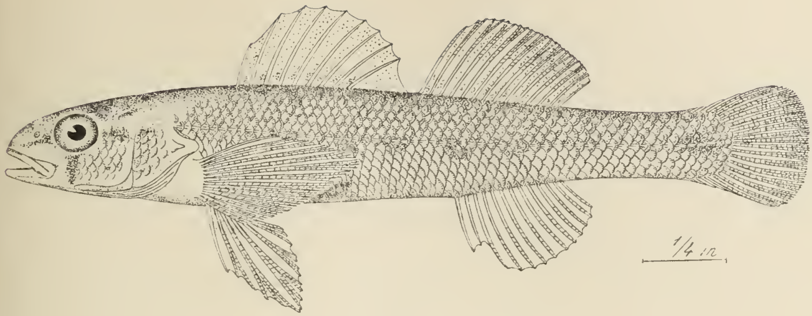


438

437. Hadropterus macrocephalus. (P. 1031.)
438. Hadropterus aspro. (P. 1032.)



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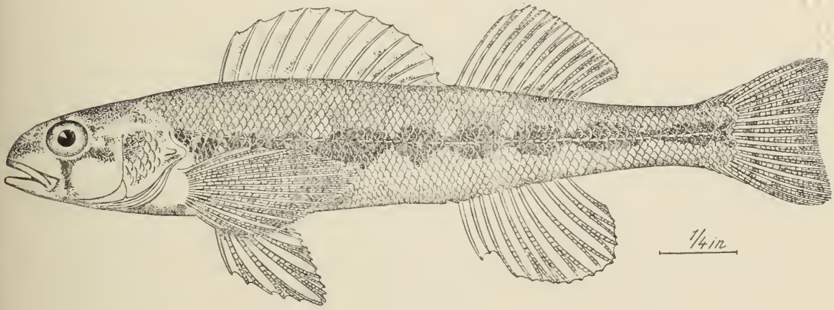

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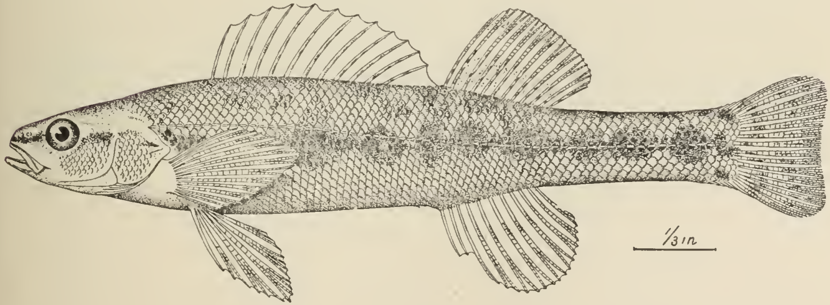
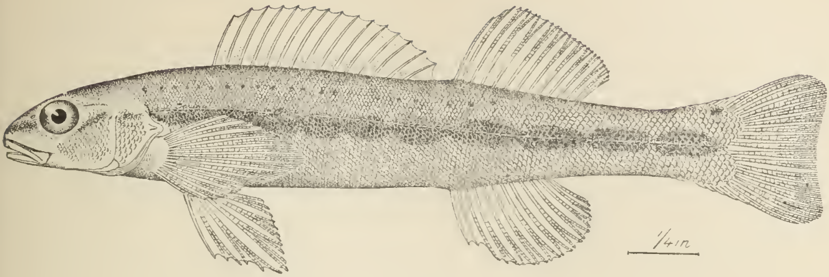


441

439. Hadropterus guntheri. (P. 1033.)
440. Hadropterus evides. (P. 1036.)
441. Hadropterus scierus. (P. 1037.)



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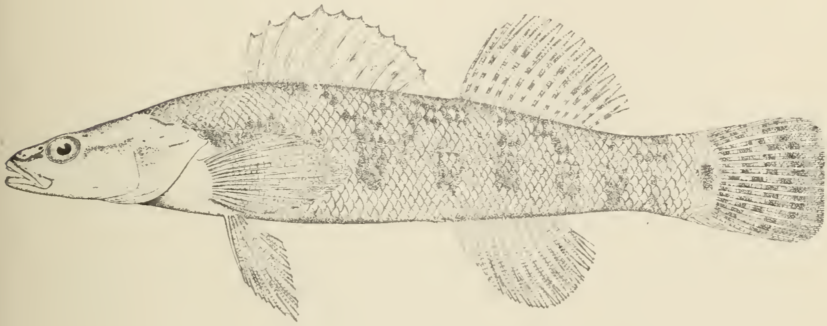

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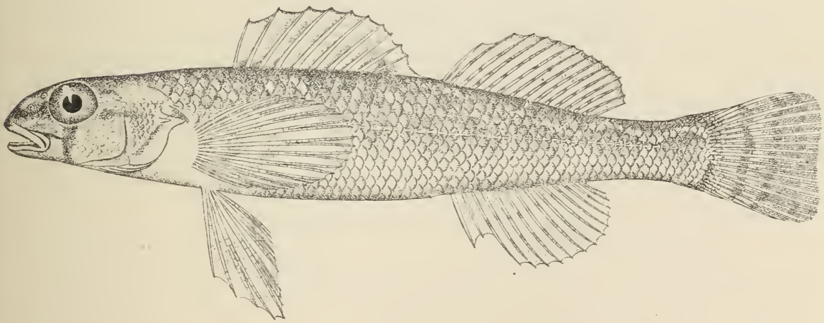
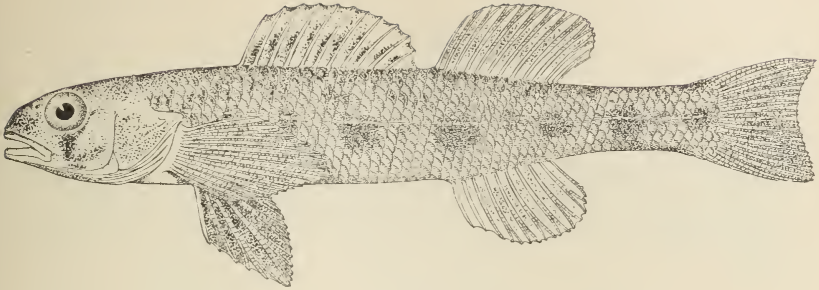


444

442. Hypohomus aurantiacus. (P. 1040.)
443. Hypohomus spilotus. (P. 1043.)
444. Cottogaster shumardi. (P. 1046.)



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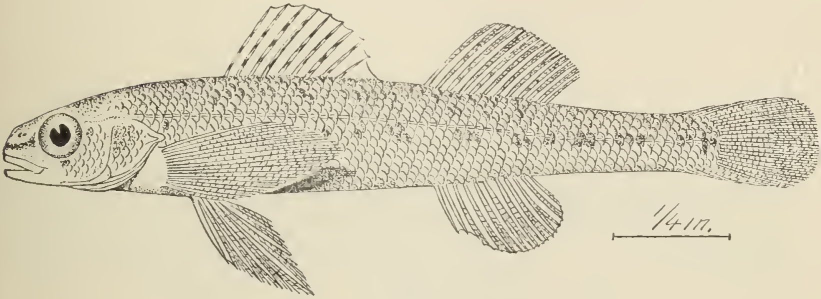

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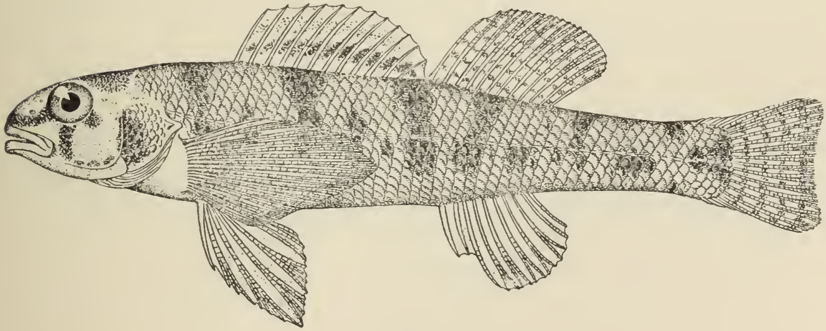
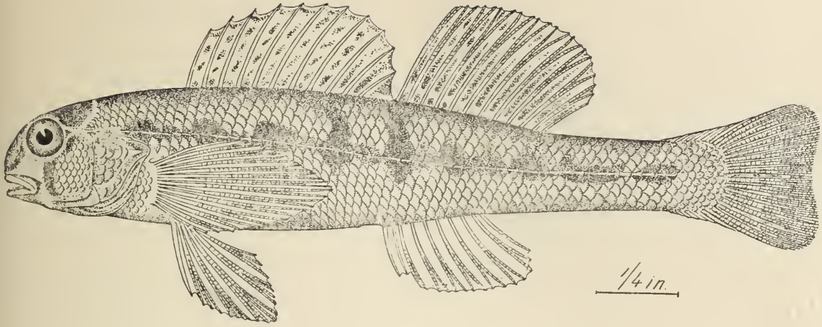


447

445. Cottogaster cheneyi. (P. 2851.)
446. Ulocentra gilberti. (P. 1049.)
447. Ulocentra meadiæ. (P. 2852.)



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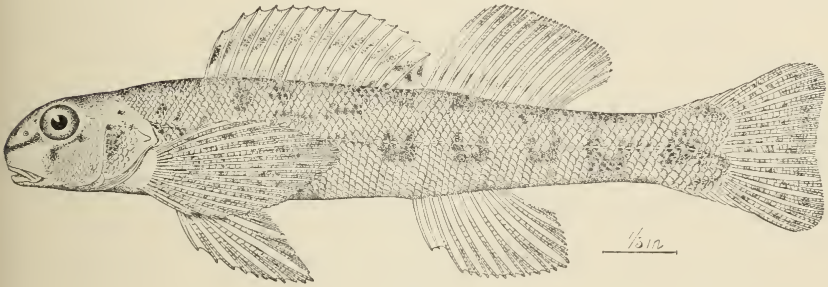

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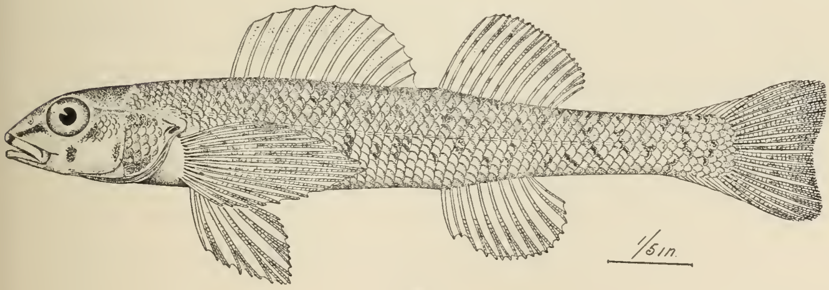
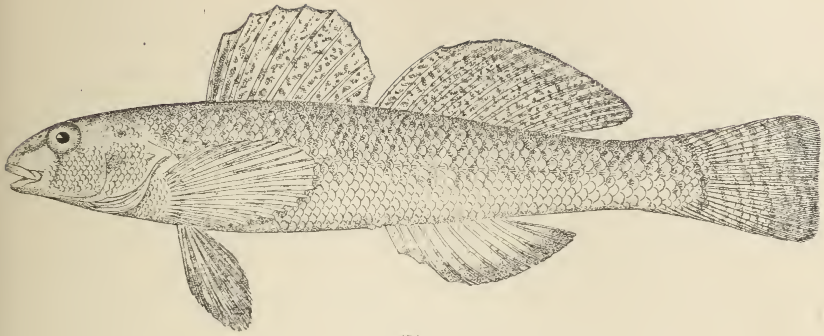


450

448. Ulocentra simotera. (P. 1051.)
449. Diplesion blennioides. (P. 1053.)
450. Boleosoma nigrum. (P. 1056.)



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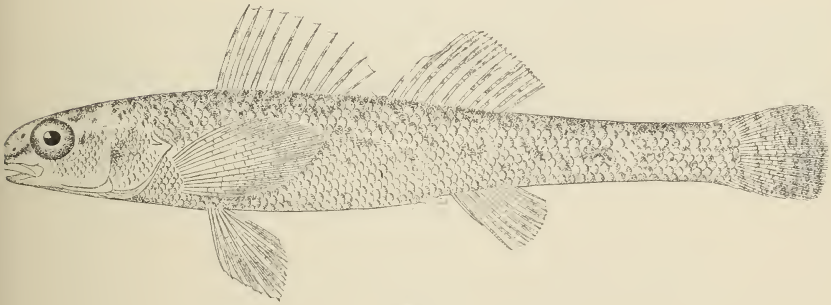

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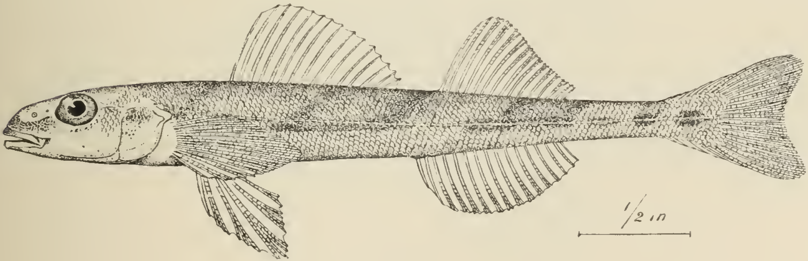
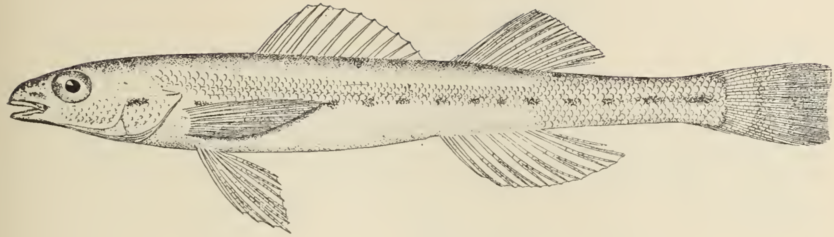


453

451. Boleosoma nigrum olmstedi. (P. 1057.)
452. Boleosoma camurum. (P. 1060.)
453. Crystallaria asprella. (P. 1061.)



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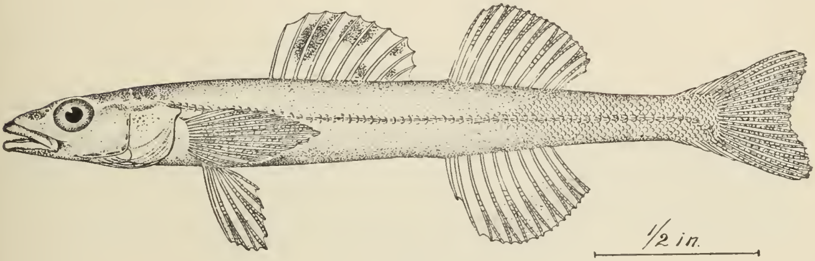

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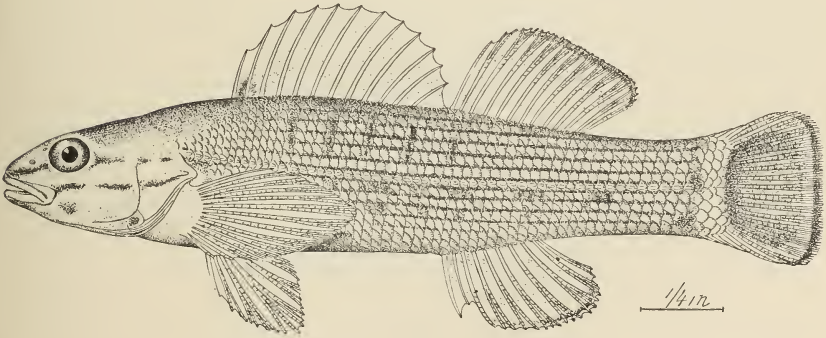
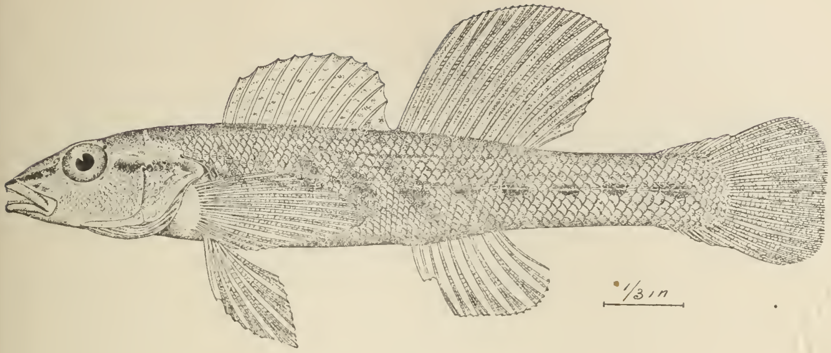


456

454. Ammocrypta pellucida clara. (P. 1063.)
455. Ammocrypta beanii. (P. 1064.)
456. Etheostoma camurum. (P. 1076.)



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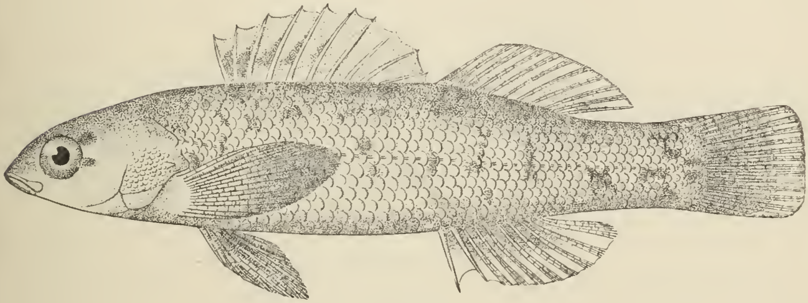

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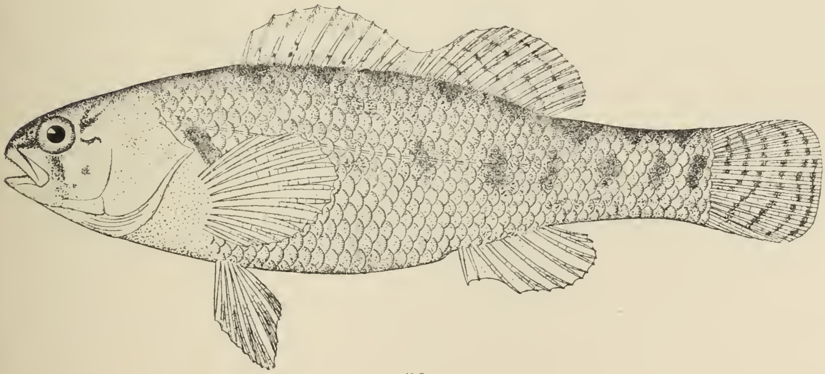
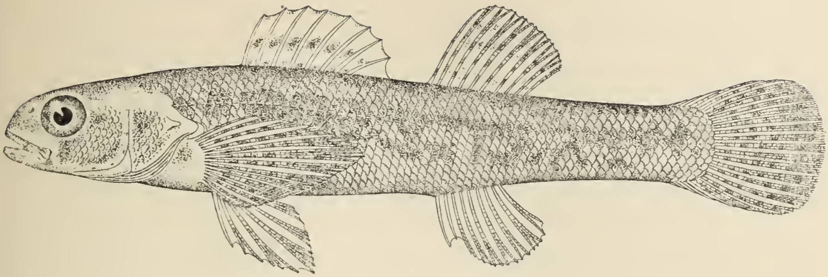


459

457. Etheostoma cinereum. (P. 1078.
458. Etheostoma jordani. (P. 1079.)
459. Etheostoma pottsii. (P. 1082.)



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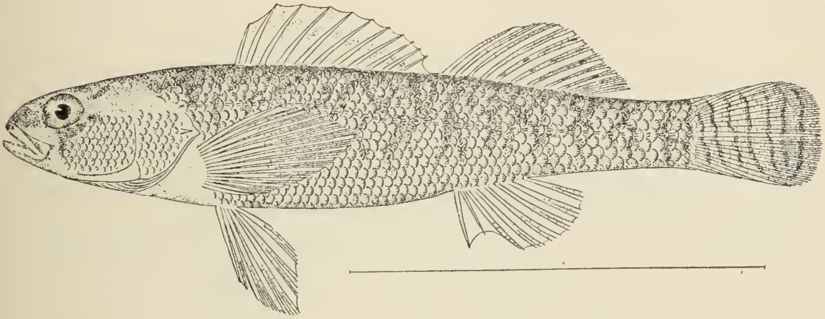

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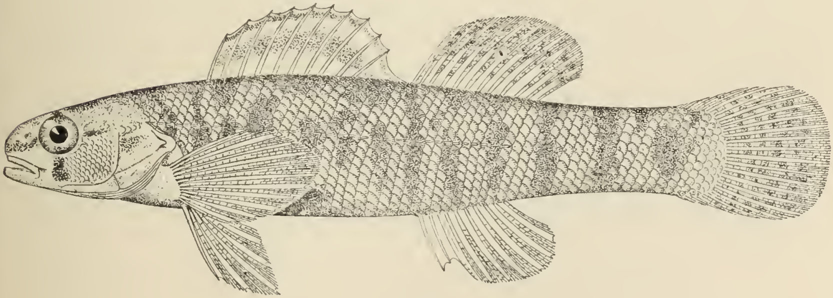
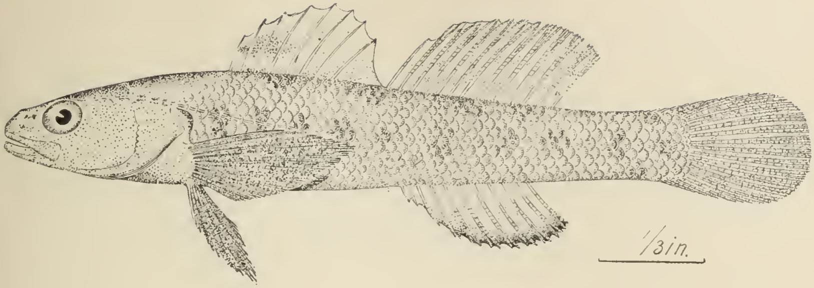


462

460. Etheostoma iowæ. (P. 1083.)
461. Etheostoma jessiæ. (P. 1084.)
462. Etheostoma lepidogenys. (P. 1087.)



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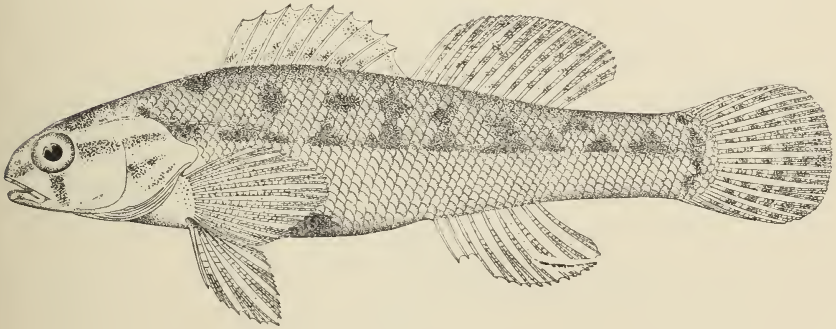

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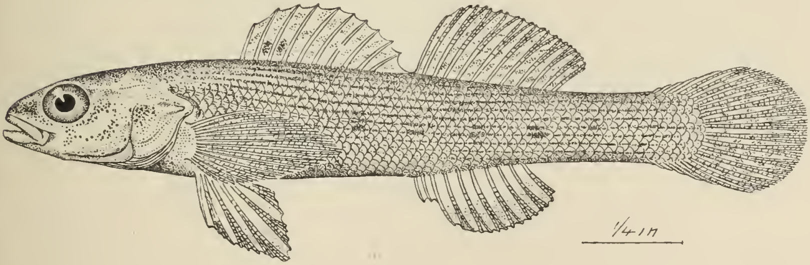
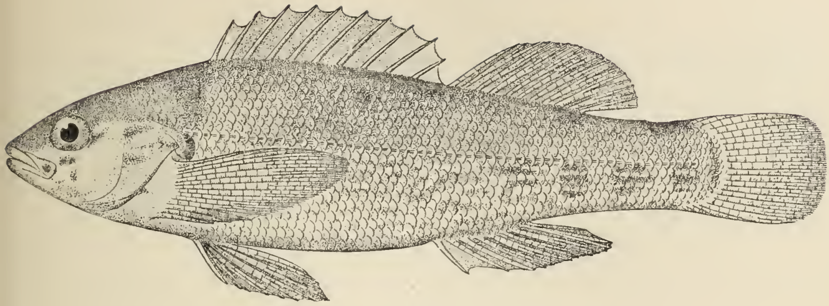


465

463. ETHEOSTOMA OBEYENSE. (P. 1092.)
464. ETHEOSTOMA PAGEI. (P. 1092.)
465. ETHEOSTOMA VIRGATUM. (P. 1093.)



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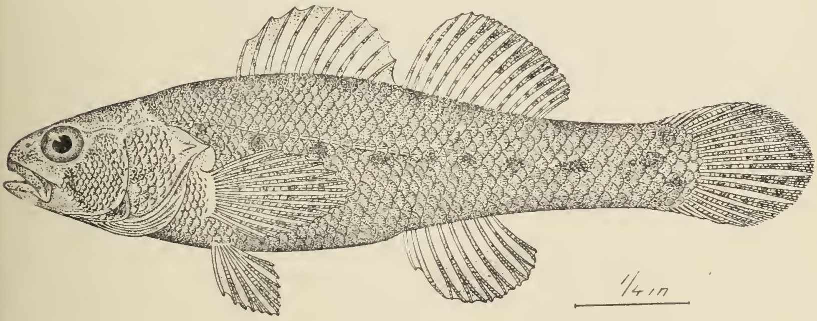

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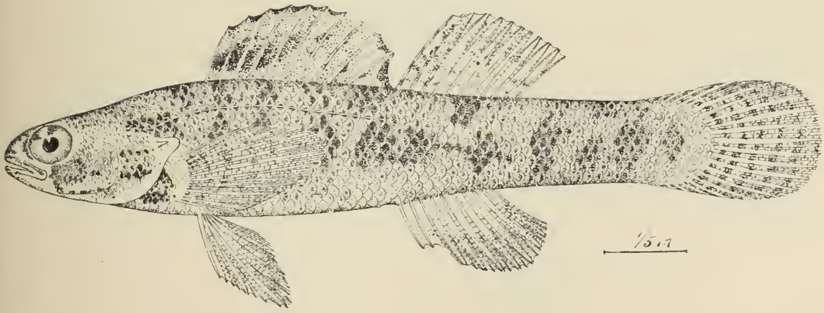
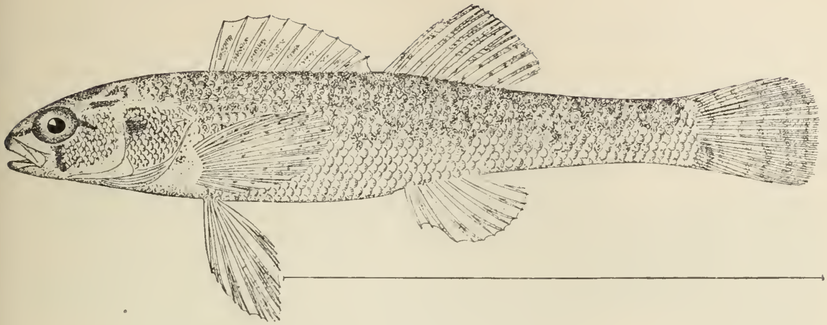


468

466. ETHEOSTOMA JULIÆ. (P. 1093.)
467. PSYCHROMASTER TUSCUMBIA. (P. 1100.)
468. COPELANDELLUS QUIESCENS. (P. 1100.)



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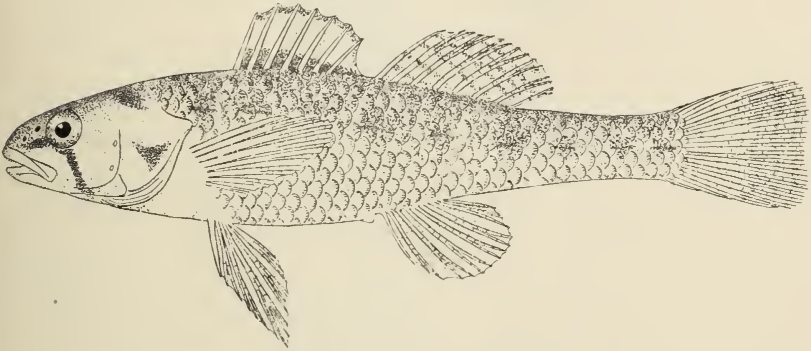

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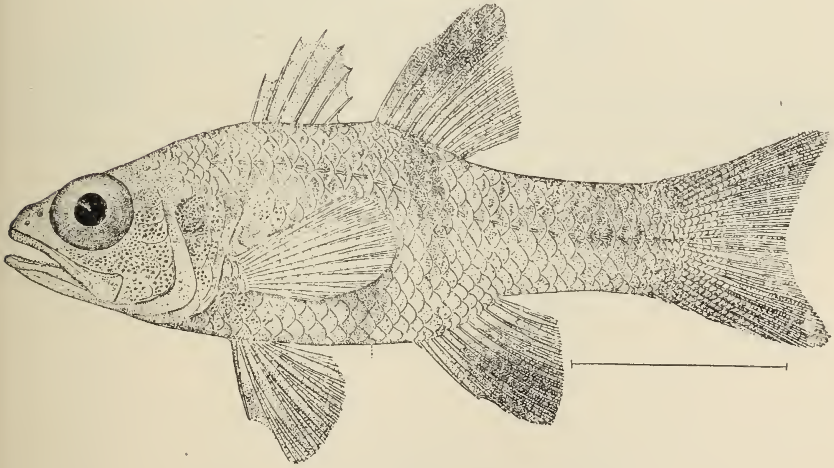
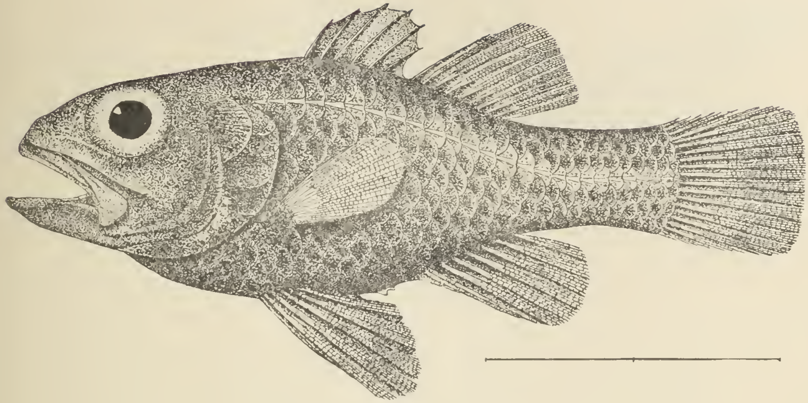


471

469. Boleichthys fusiformis. (P. 1101.)
470. Microperca fonticola. (P. 1104.)
471. Apogon retrosella. (P. 1108.)



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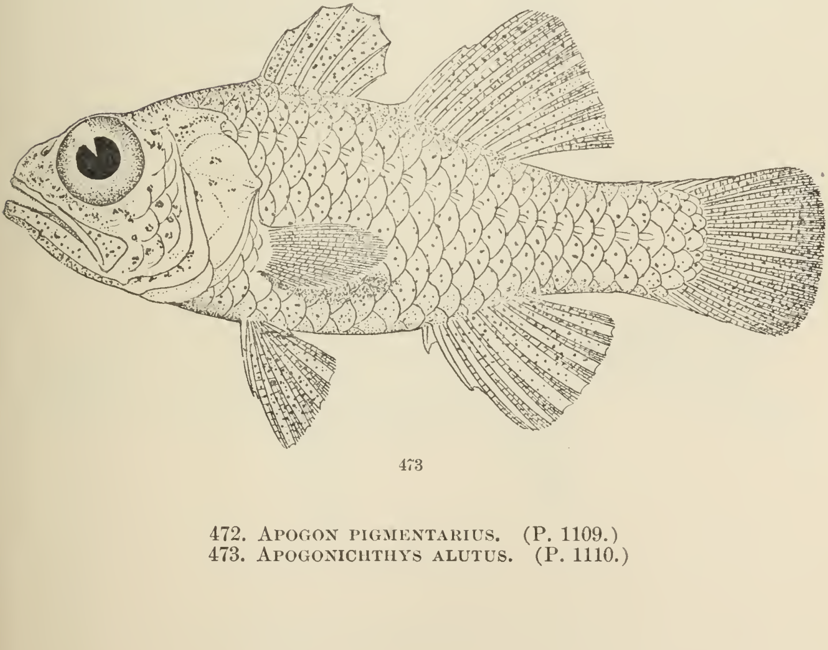
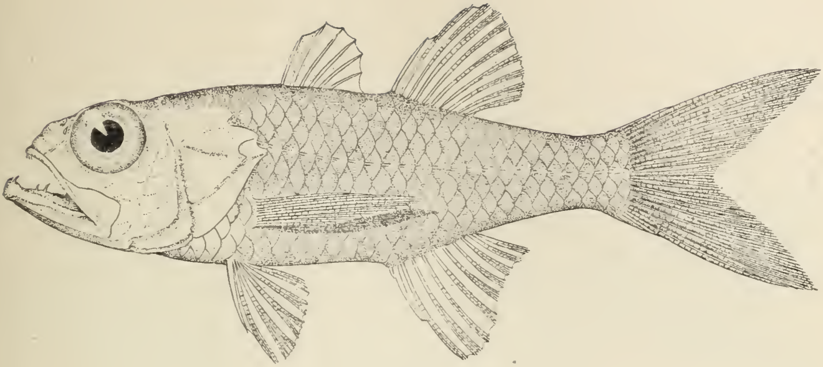


473

472. Apogon pigmentarius. (P. 1109.)
473. Apogonichthys alutus. (P. 1110.)



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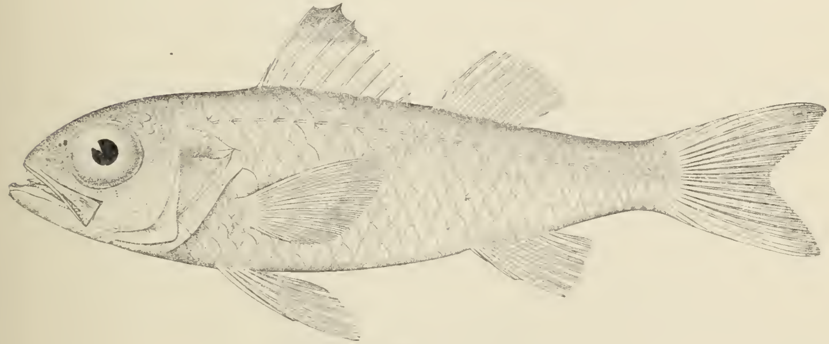

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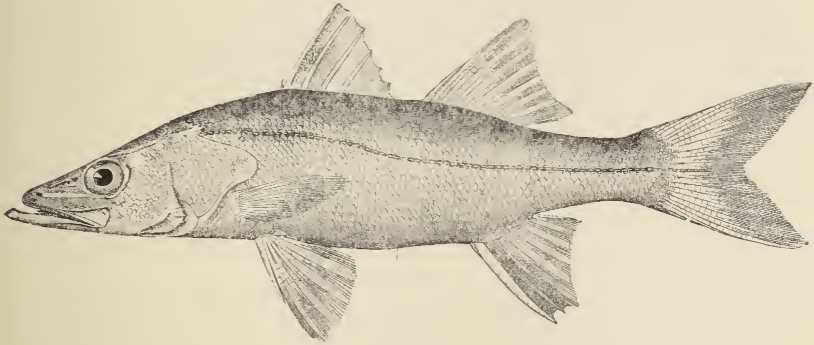
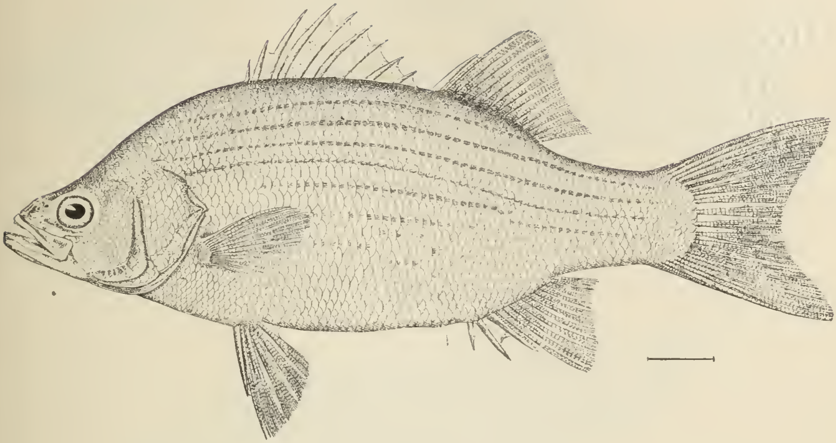


476

474. Cheilodipterus affinis. (P. 1113.)
475. Hypoclydonia bella. (P. 1115.)
476. Centropomus undecimalis. (P. 1118.)



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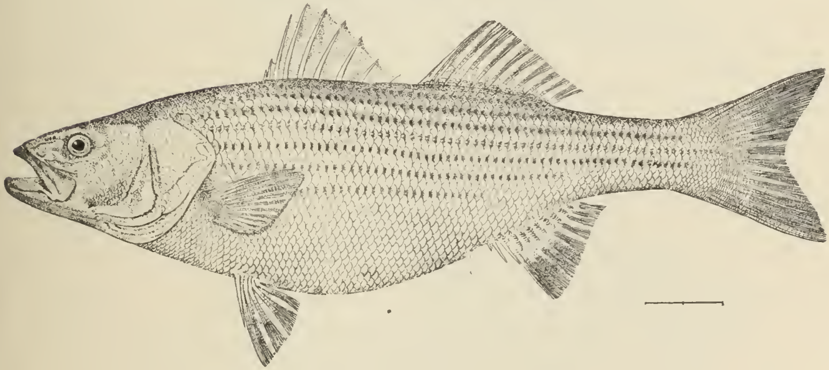
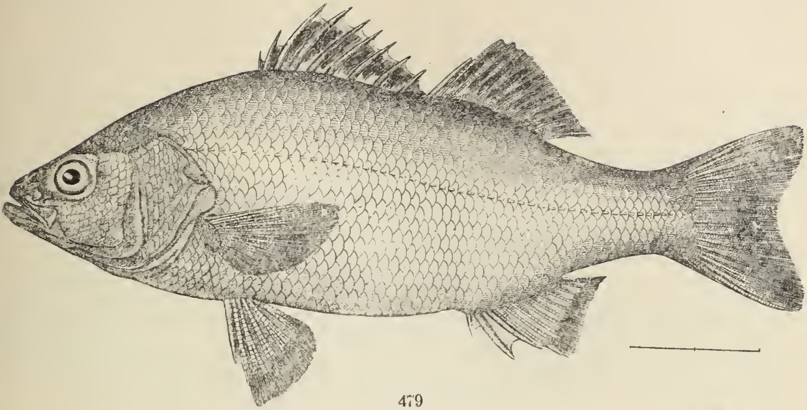


478

477. Roccus chrysops. (P. 1132.)
478. Roccus lineatus. (P. 1132.)



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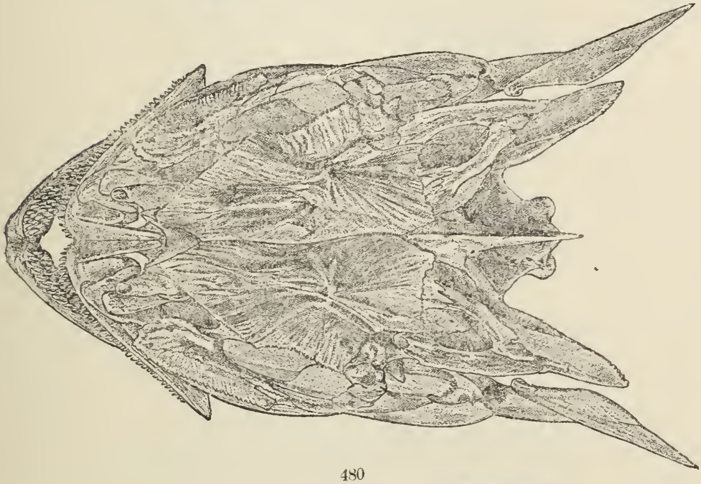

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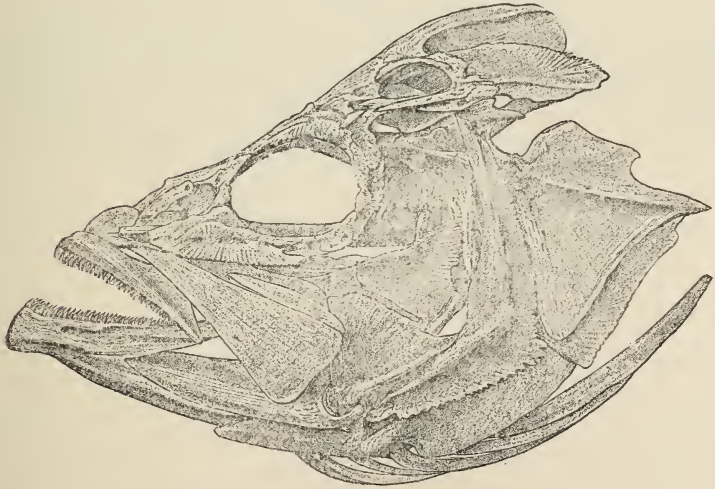
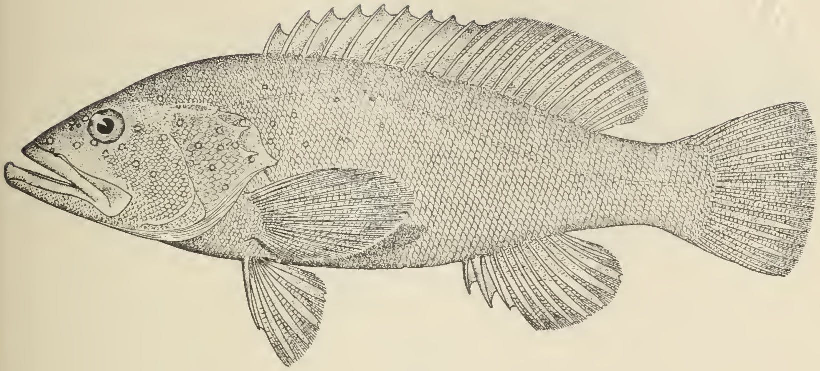


480*a*

479. Morone americana. (P. 1134.)
480, 480*a*. Skull of Polyprion americanus. (P. 1139.)



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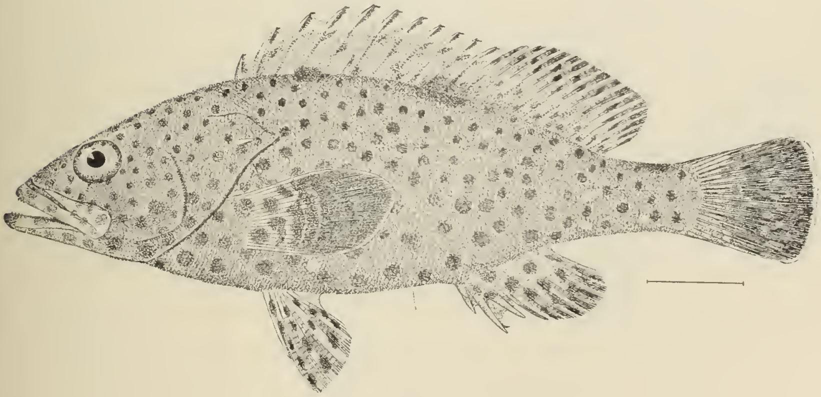
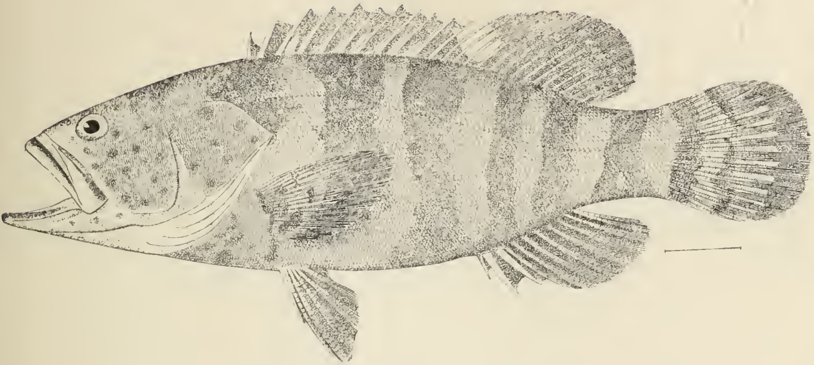


482

481. Bodianus fulvus punctatus. (P. 1146.)
482. Epinephelus adscensionis. (P. 1152.)



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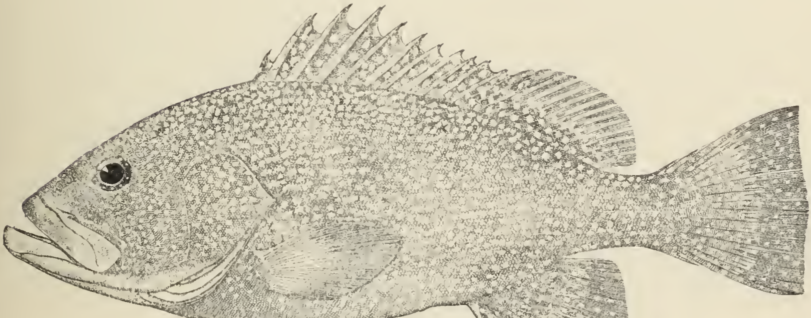
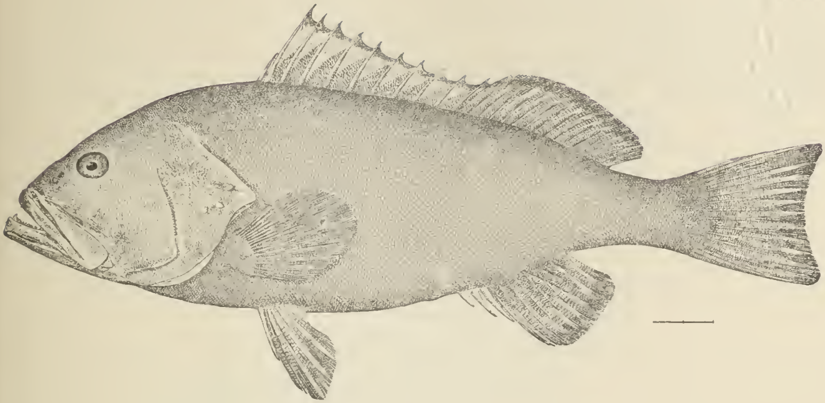


484

483. Epinephelus striatus. (P. 1157.)
484. Epinephelus drummond-hayi. (P. 1159.)



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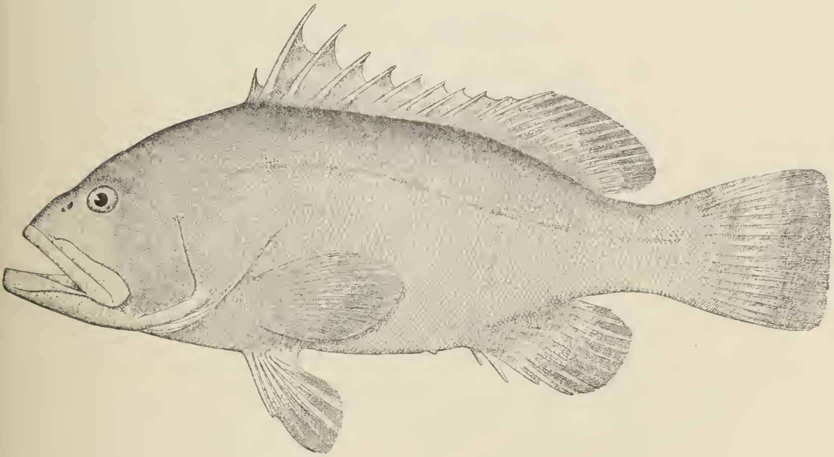
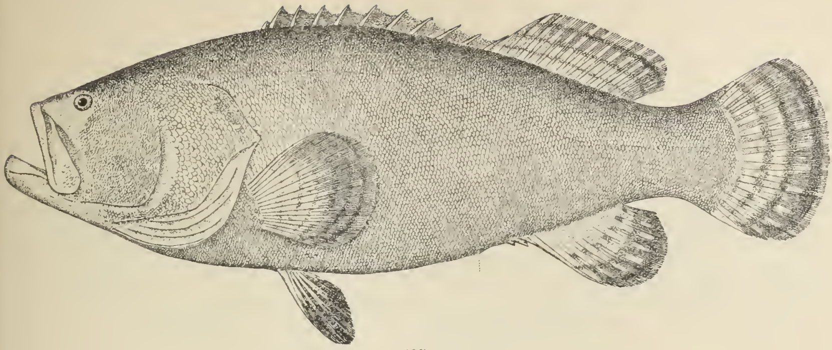


486

485. Epinephelus morio. (P. 1160.)
486. Garrupa nigrita. (P. 1161.)



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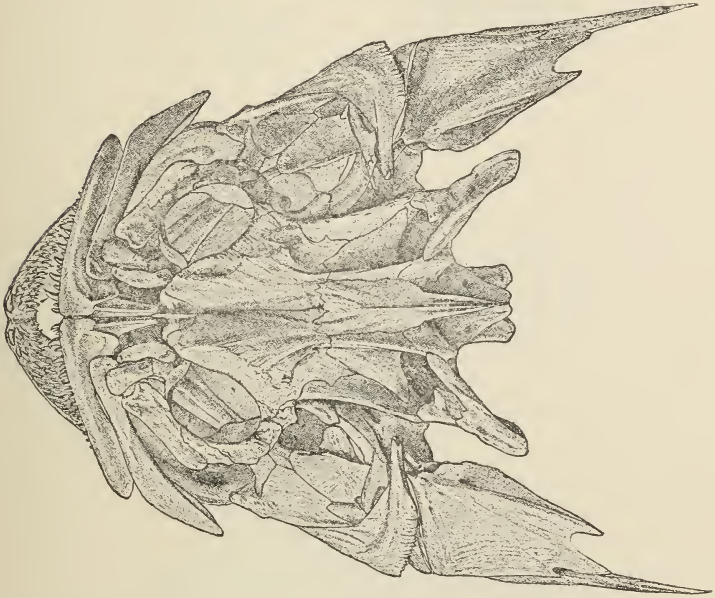
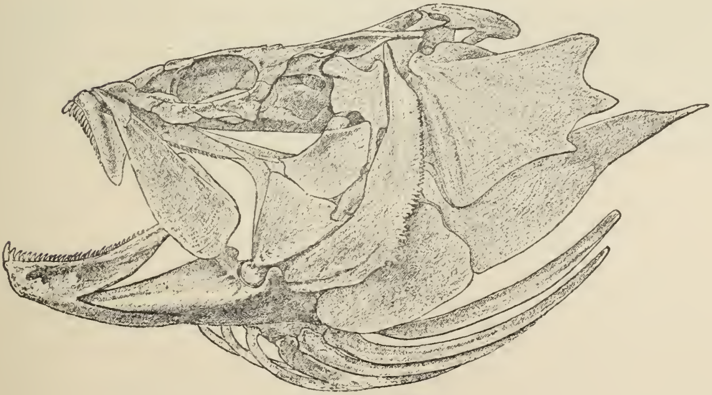
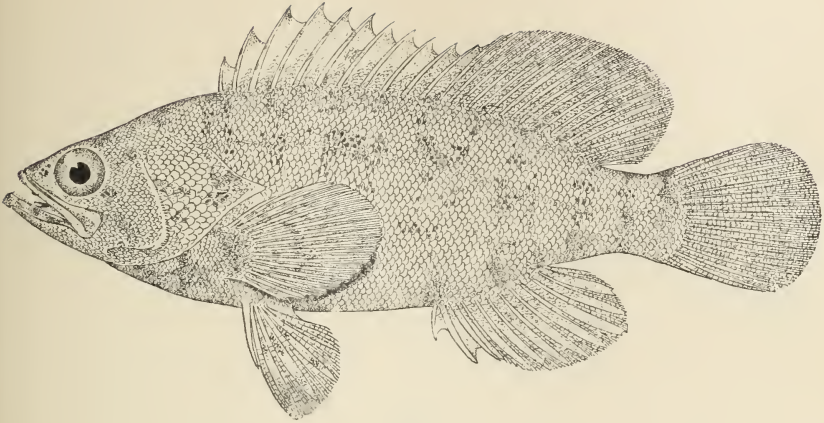


487*a*



487*b*

487, 487*a*, 487*b*. Promicrops guttatus. (P. 1162.)



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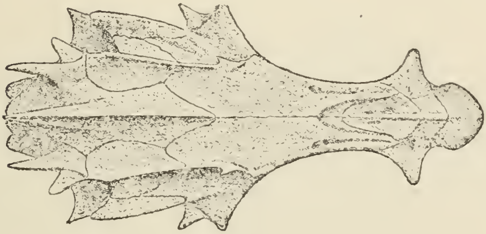
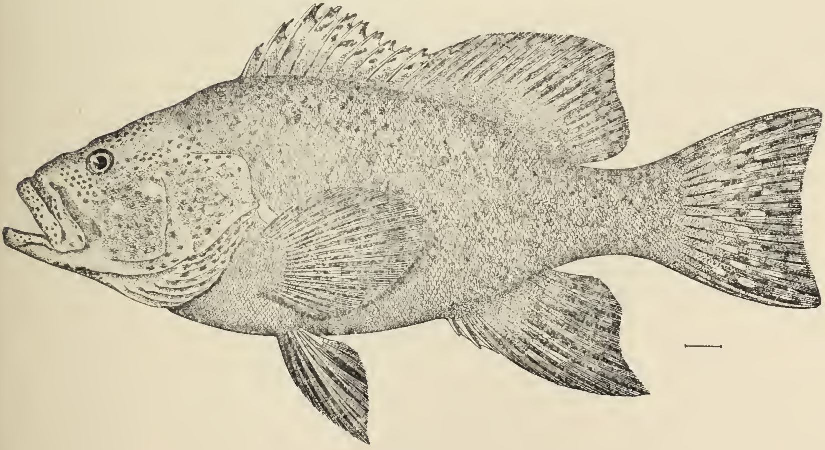
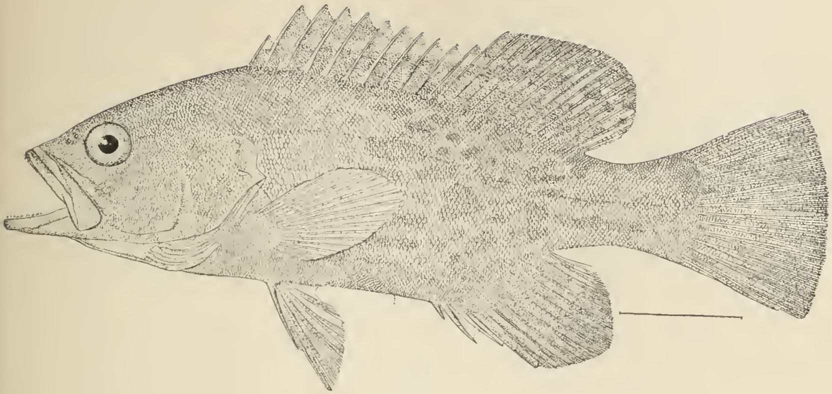


488*a*



489

488. Alphestes afer. (P. 1164.)
488*a*. Skull of Alphestes afer. (P. 1164.)
489. Dermatolepis zanclus. (P. 2854.)



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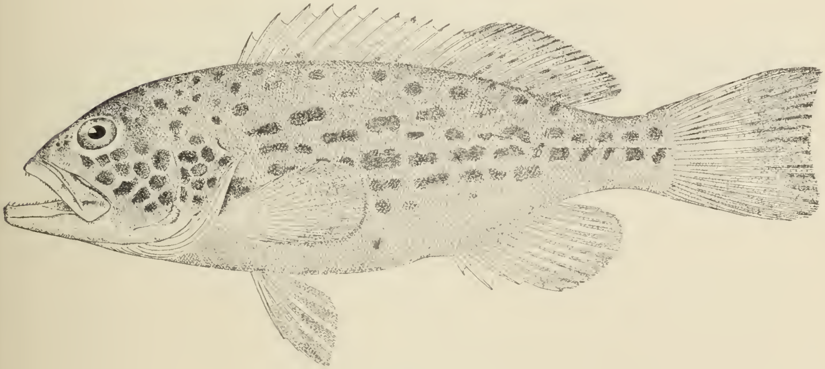

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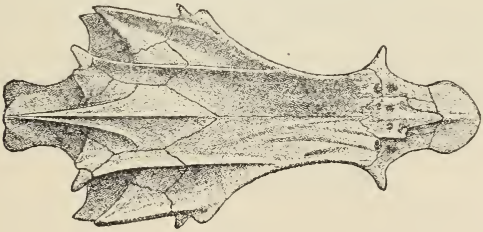
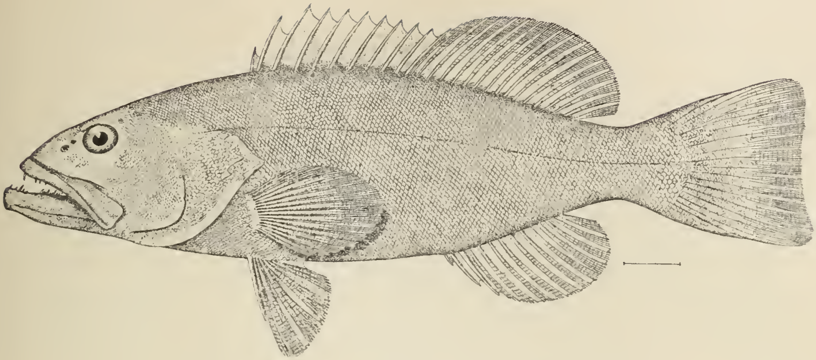


492

490. Mycteroperca boulengeri. (P. 1171.)
491. Mycteroperca venenosa. (P. 1172.)
492. Skull of Mycteroperca bonaci. (P. 1174.)



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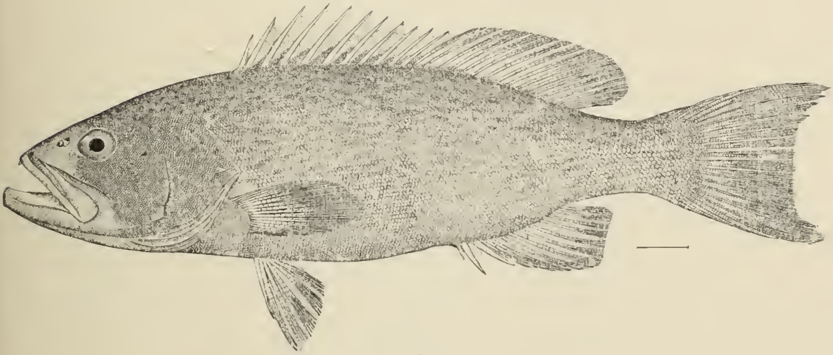

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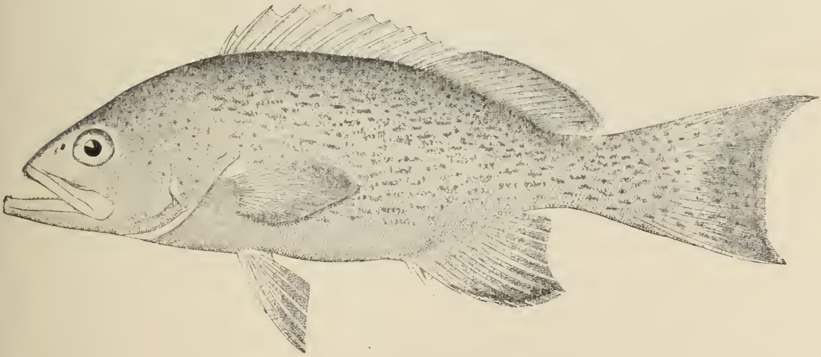
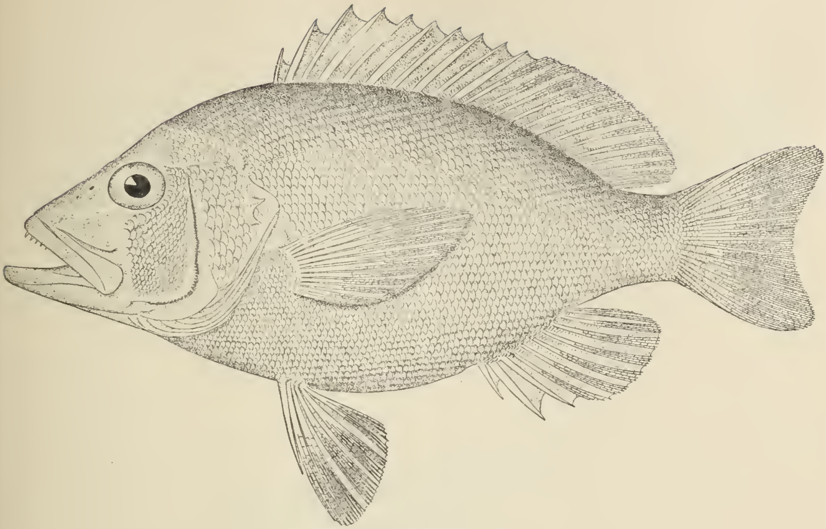


495

493. Mycteroperca jordani. (P. 1176.)
494. Mycteroperca microlepis. (P. 1177.)
495. Mycteroperca falcata phenax. (P. 1185.)



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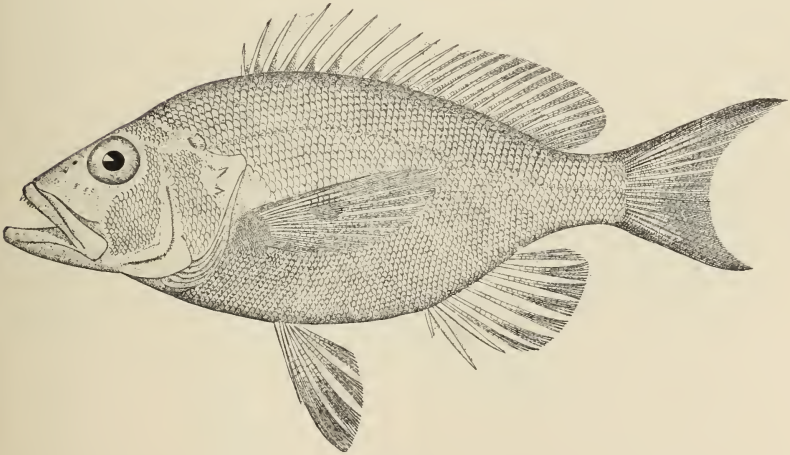
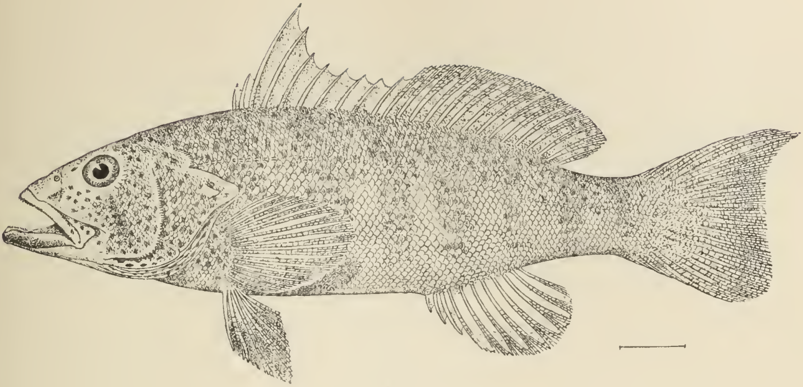


497

496. Hypoplectrus unicolor nigricans. (P. 1193.)
497. Hypoplectrus gemma. (P. 1193.)



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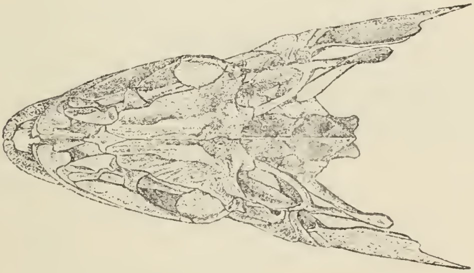

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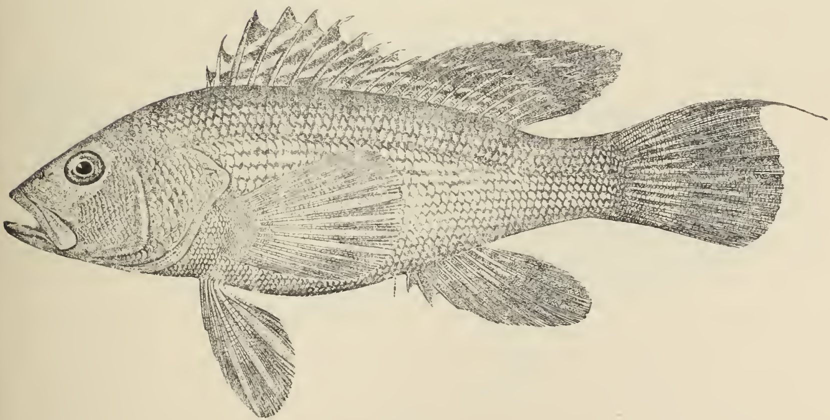
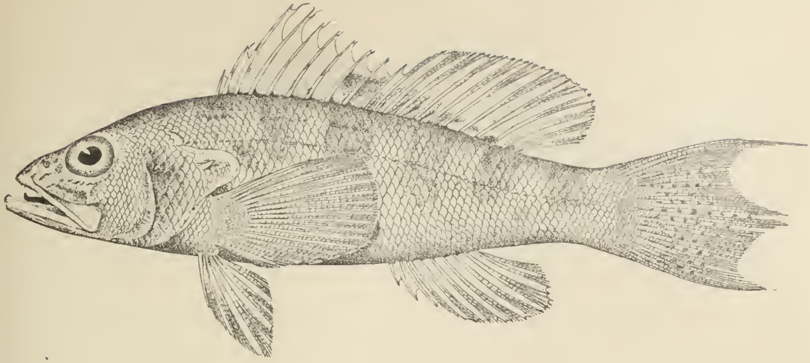


500

498. Paralabrax maculatofasciatus. (P. 1196.)
499. Paralabrax humeralis. (P. 1196.)
500. Centropristes striatus. (P. 1199.)



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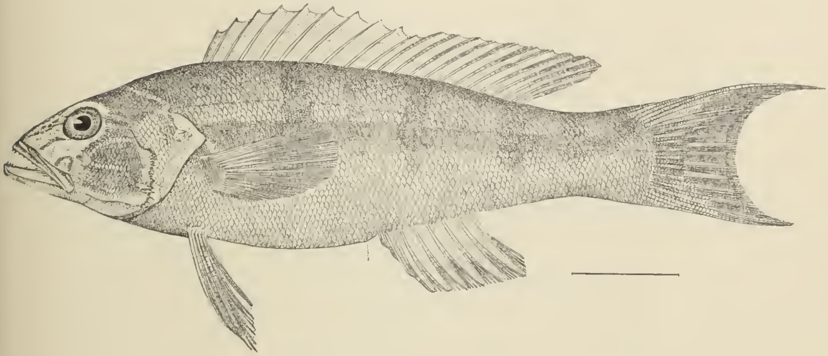

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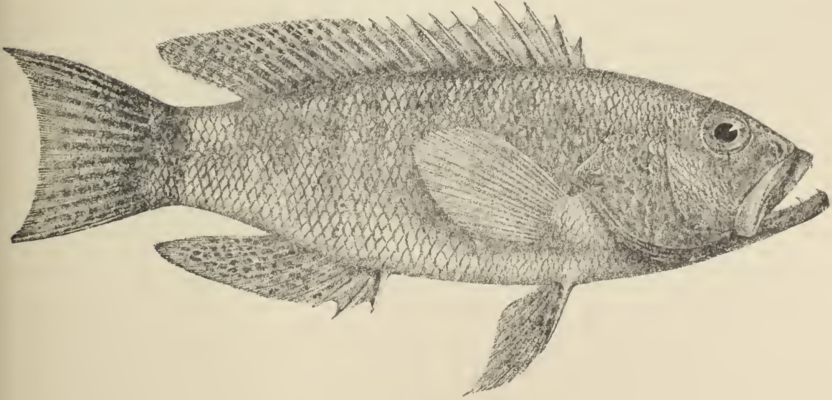
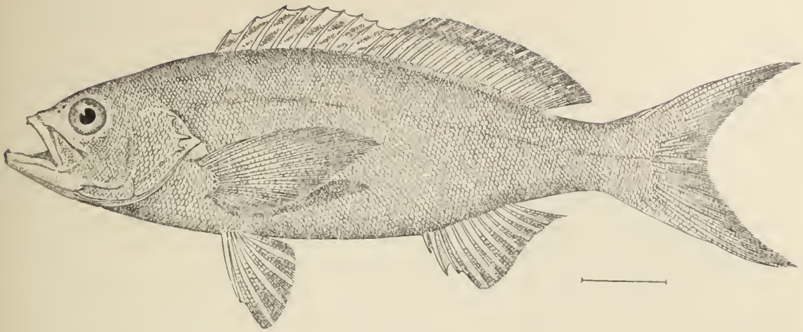


503

501. Centropristes philadelphicus. (P. 1201.)
502. Diplectrum formosum. (P. 1207.)
503. Prionodes bulleri. (P. 1213.)



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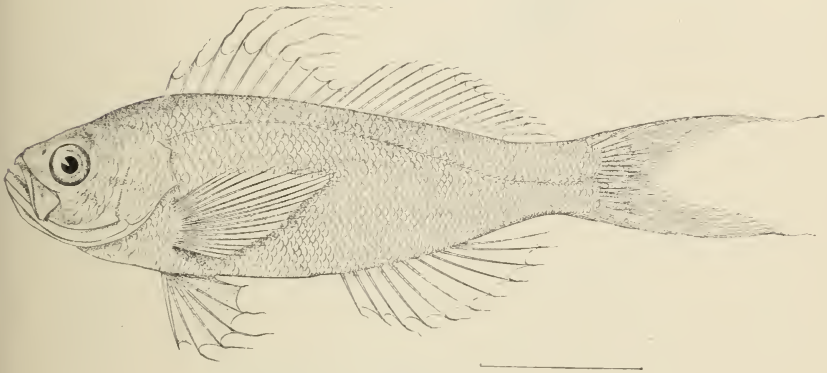

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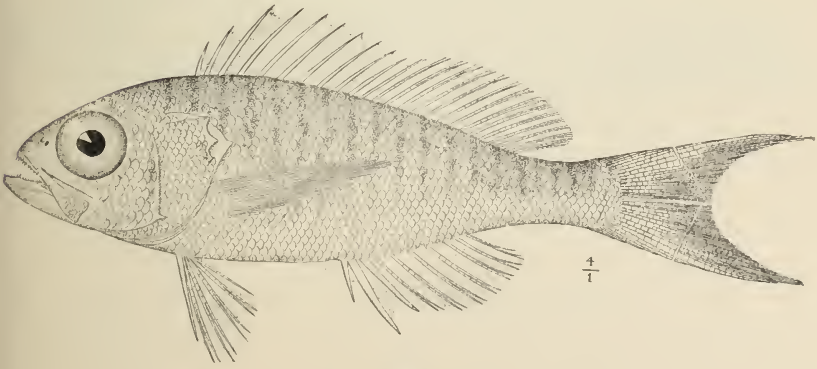
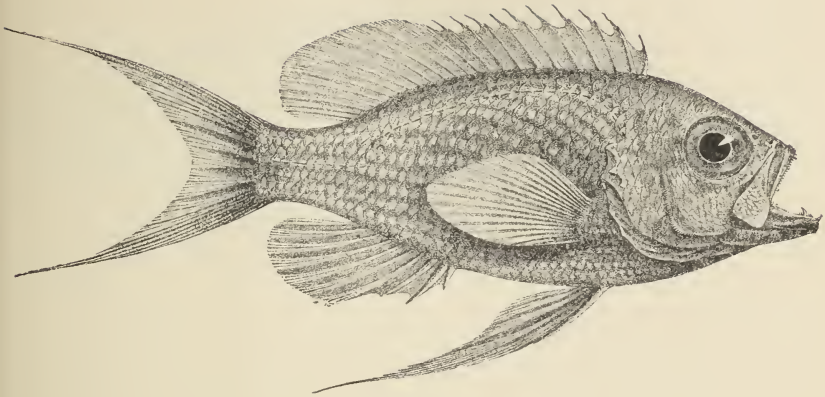


506

504. Paranthias furcifer. (P. 1221.)
505. Hemianthias vivanus (P. 1223.)
506. Pronotogrammus multifasciatus. (P. 1226.)



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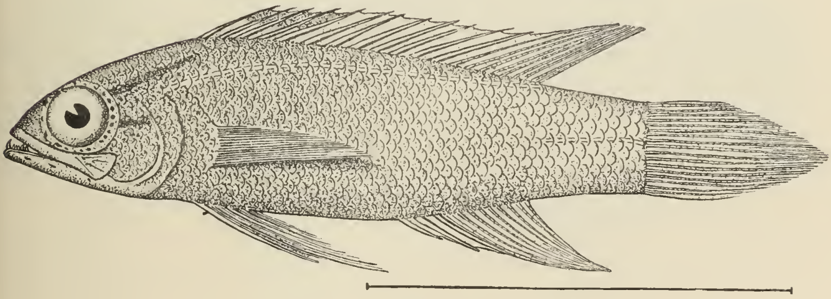
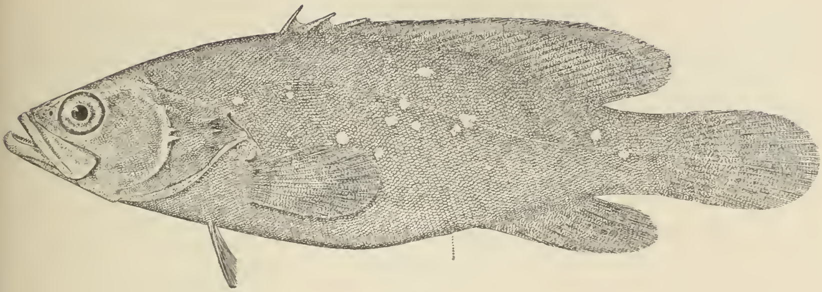


508

507. Anthias asperilinguis. (P. 1227.)
508. Gramma loreto. (P. 1229.)



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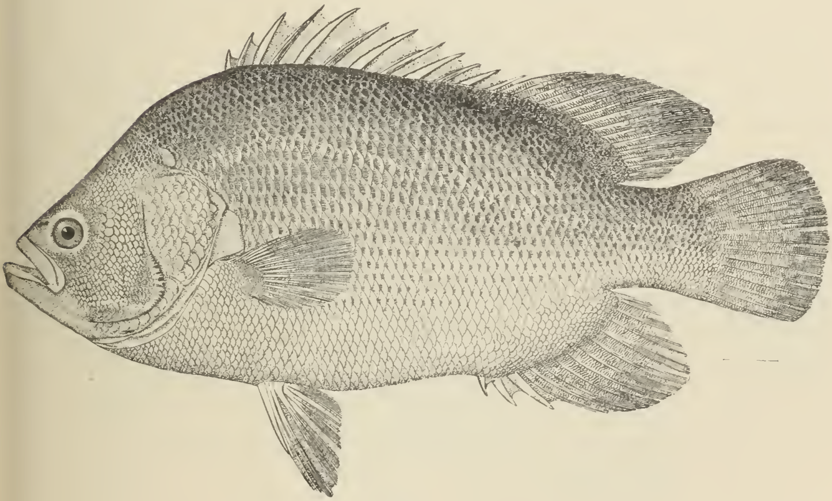
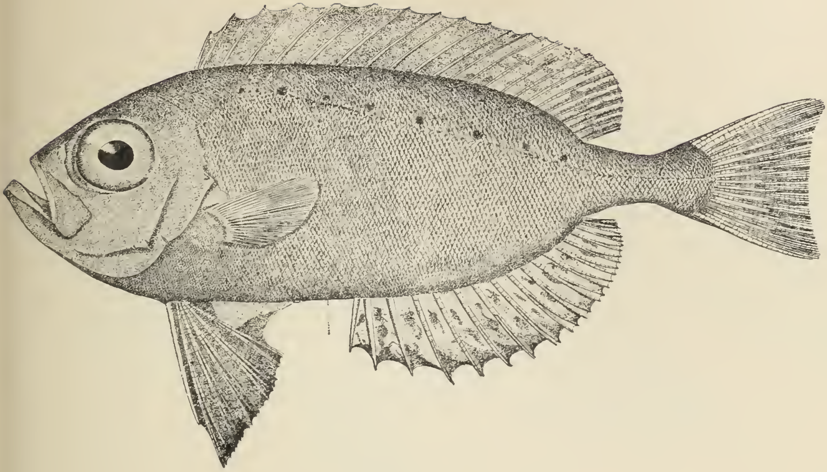


510

509. Rypticus bistrispinus. (P. 1233.)
510. Lobotes surinamensis. (P. 1235.)



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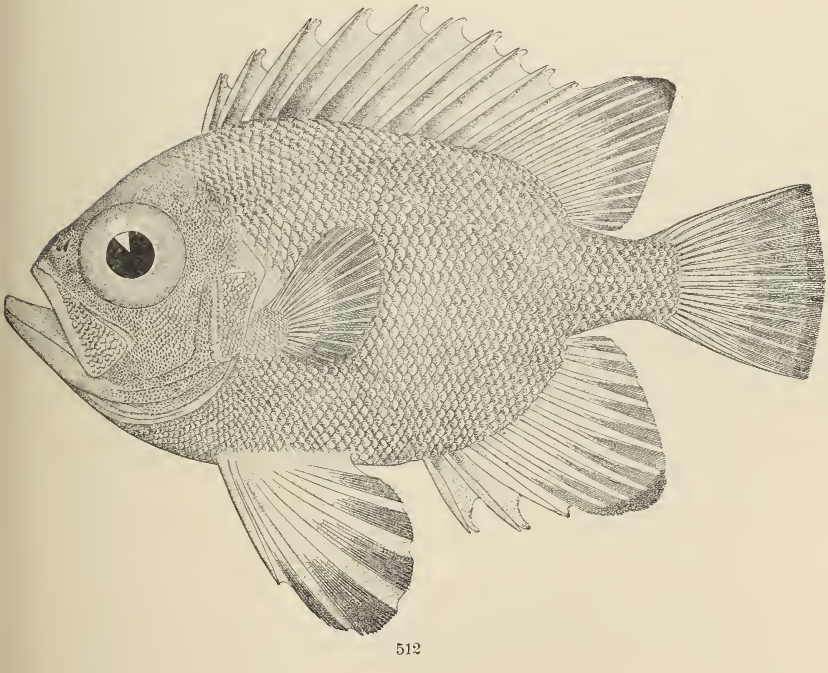
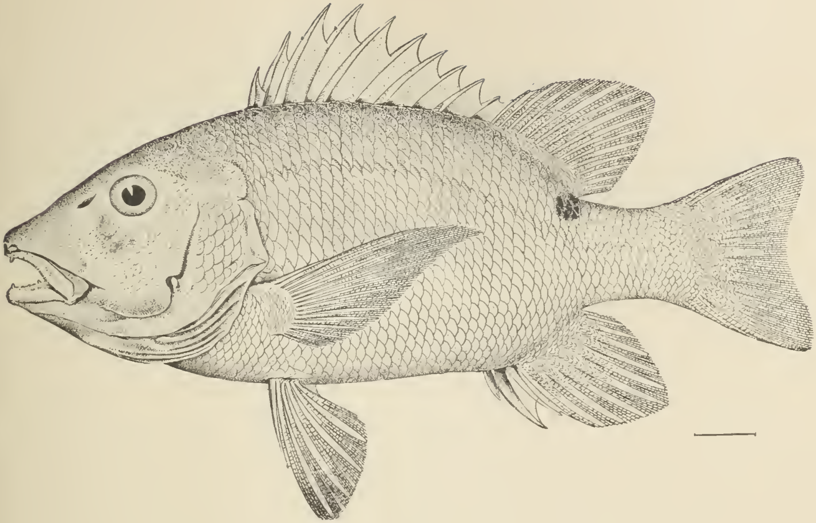


512

511. Priacanthus arenatus. (P. 1237.)
512. Pseudopriacanthus altus. (P. 1239.)



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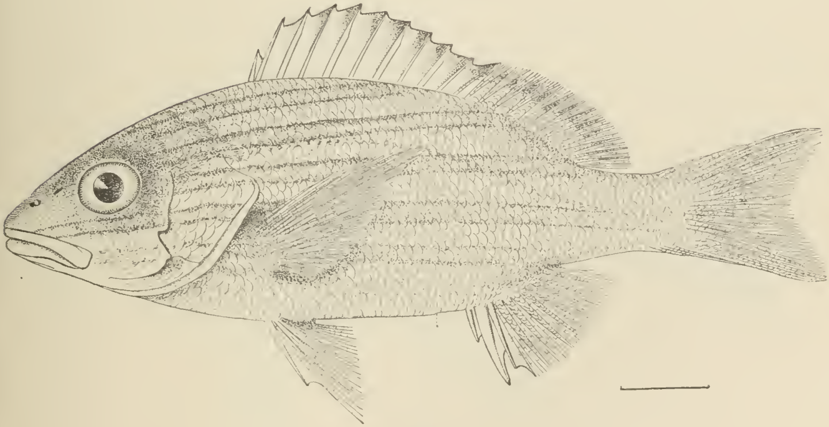
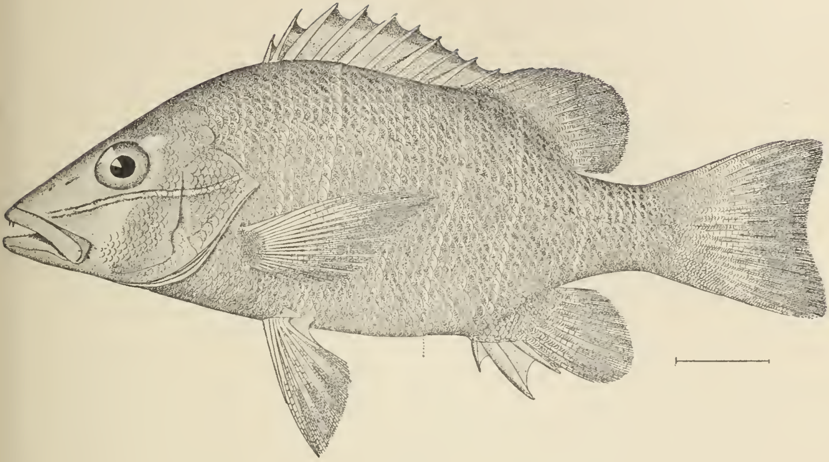


514

513. Hoplopagrus guntheri. (P. 1244.)
514. Evoplites viridis. (P. 1246.)



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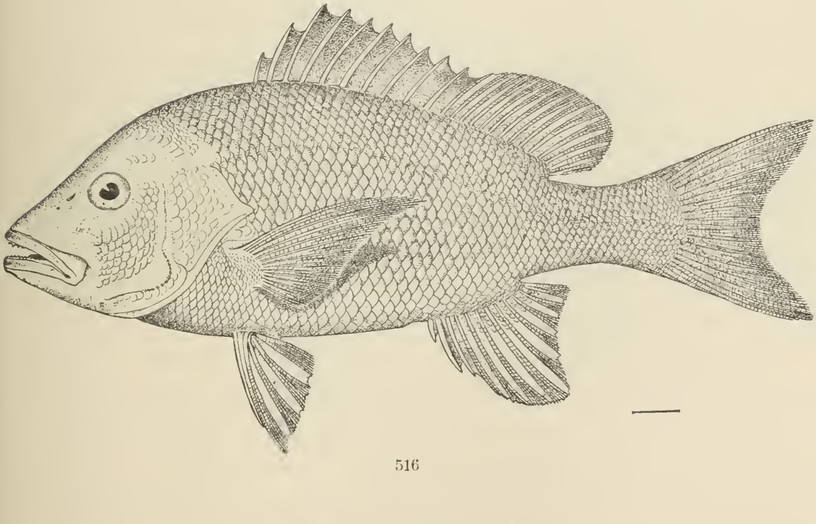
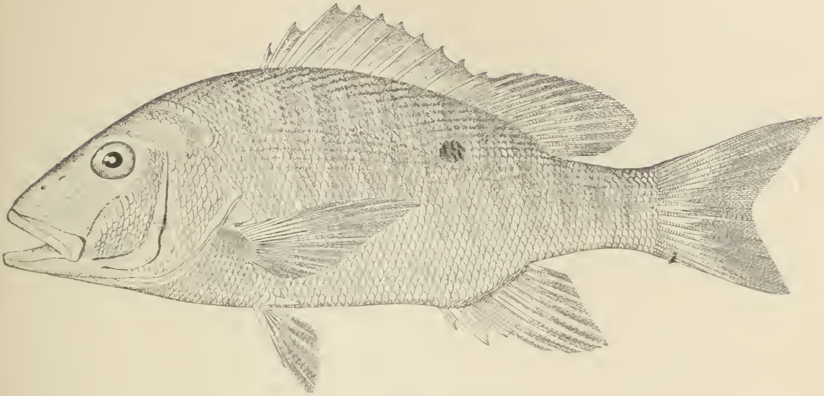


516

515. Neomænis apodus. (P. 1258.)
516. Neomænis aya. (P. 1264.)



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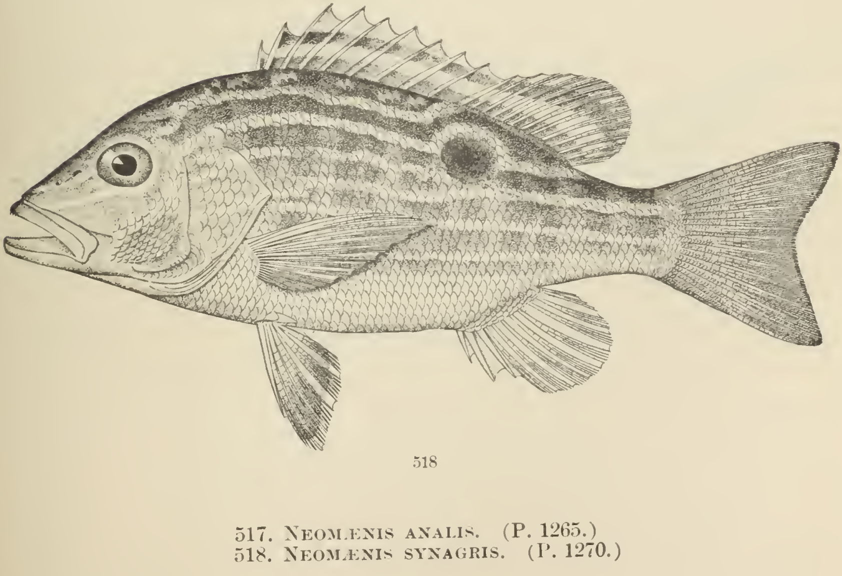
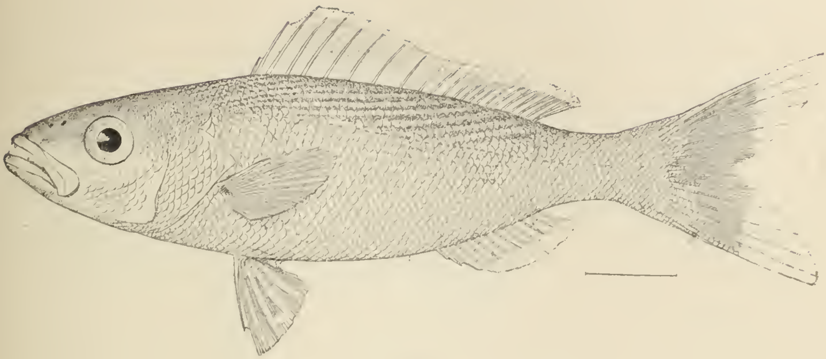


518

517. NEOMÆNIS ANALIS. (P. 1265.)
518. NEOMÆNIS SYNAGRIS. (P. 1270.)



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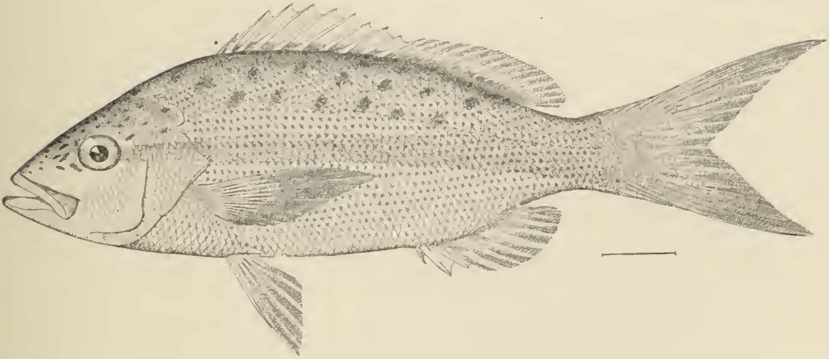
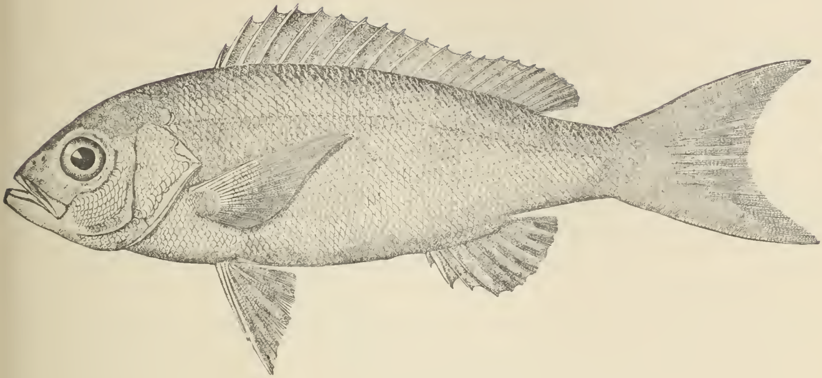


520

519. Rabirubia inermis. (P. 1274.)
520. Ocyurus chrysurus. (P. 1275.)



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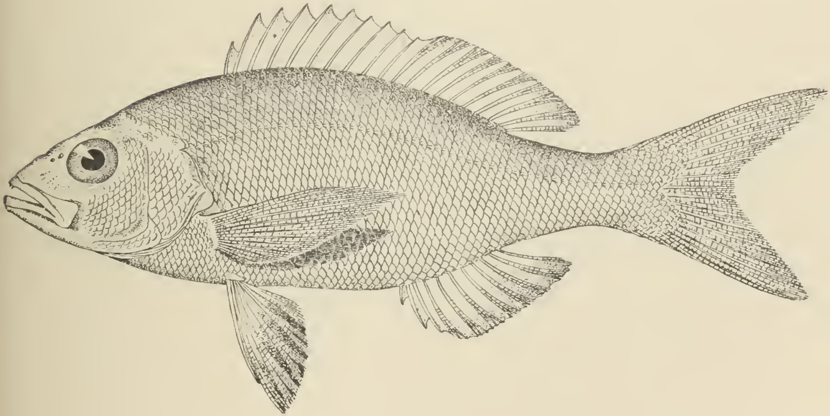
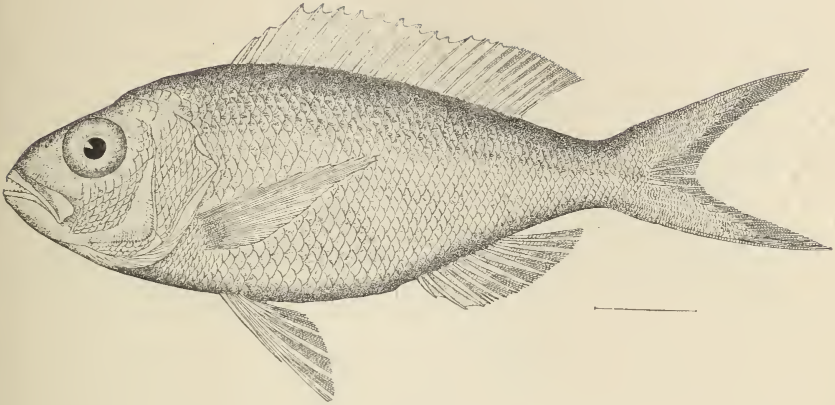


522

521. Rhomboplites aurorubens. (P. 1277.)
522. Apsilus dentatus. (P. 1278.)



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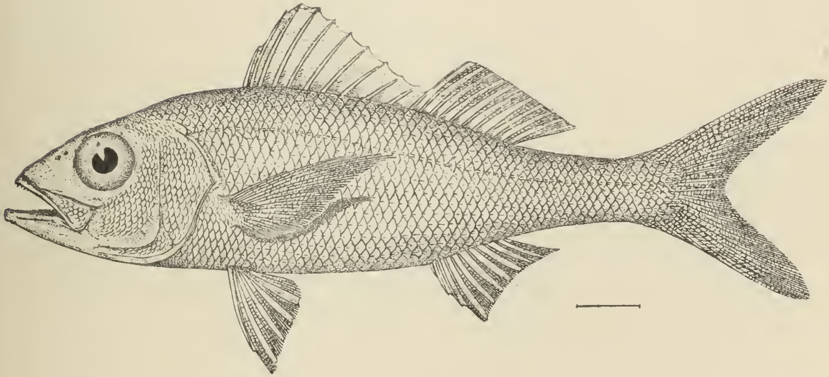
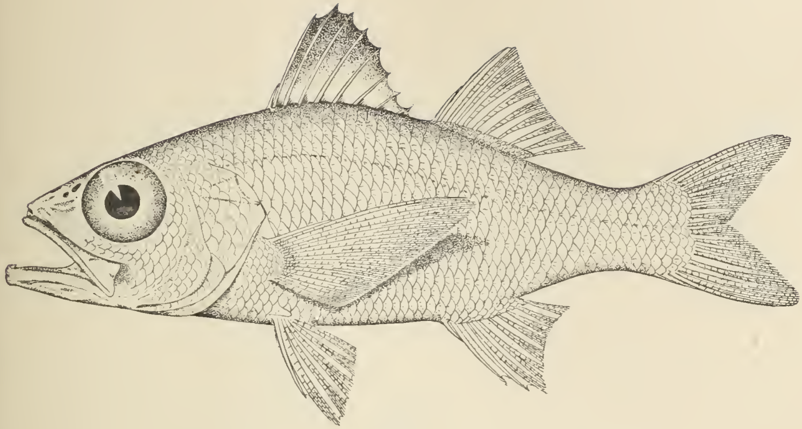


524

523. Aprion macrophthalmus. (P. 1280.)
524. Etelis oculatus. (P. 1282.)



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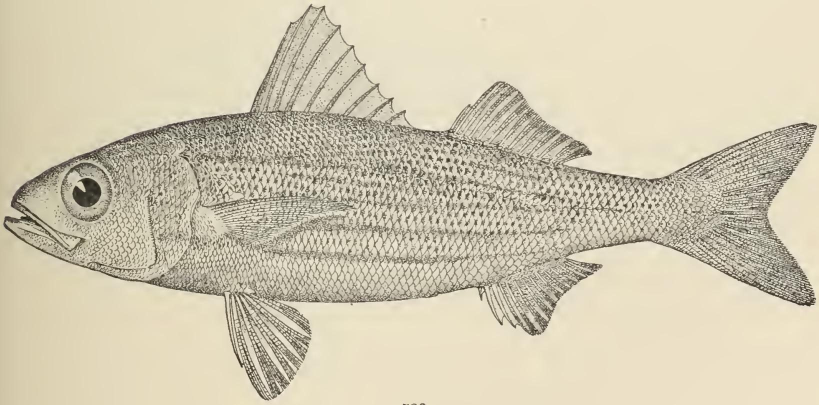
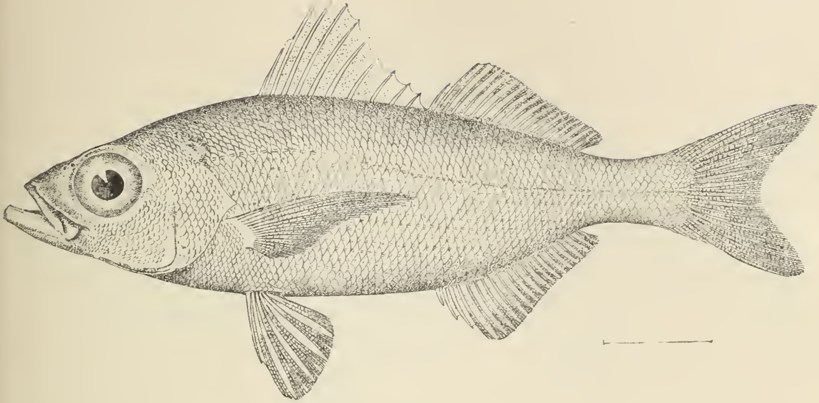


526

525. Verilus sordidus. (P. 1284.)
526. Xenocys jessiæ. (P. 1285.)



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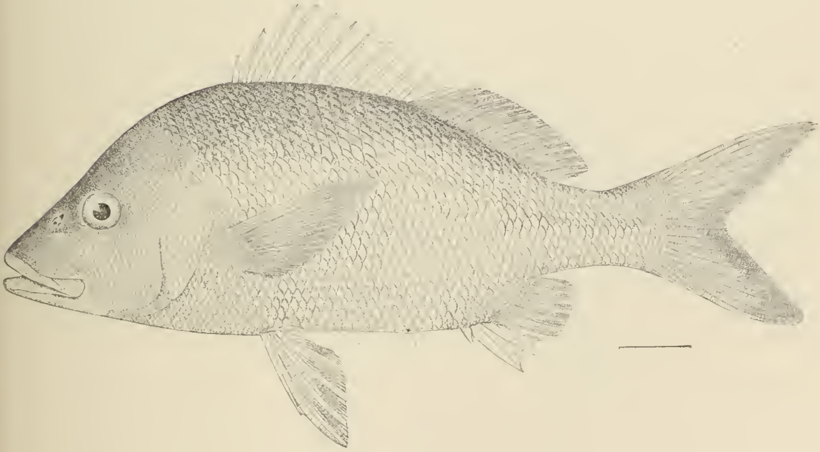
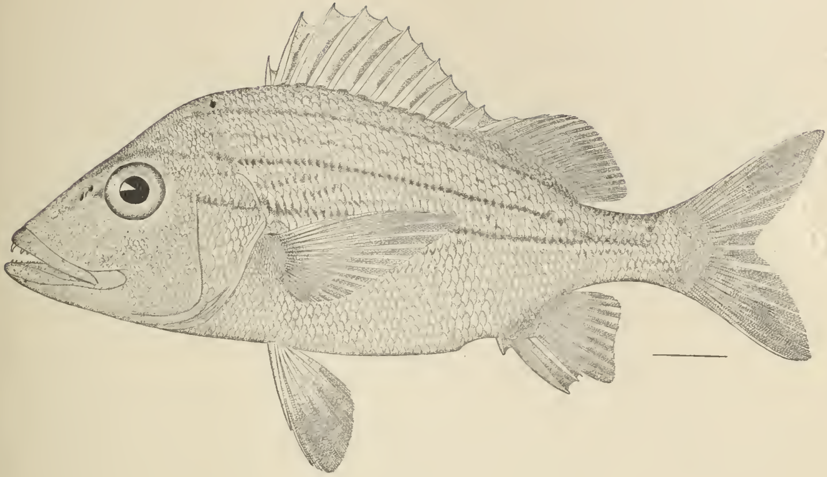


528

527. Xenichthys agassizii. (P. 1287.)
528. Hæmulon album. (P. 1295.)



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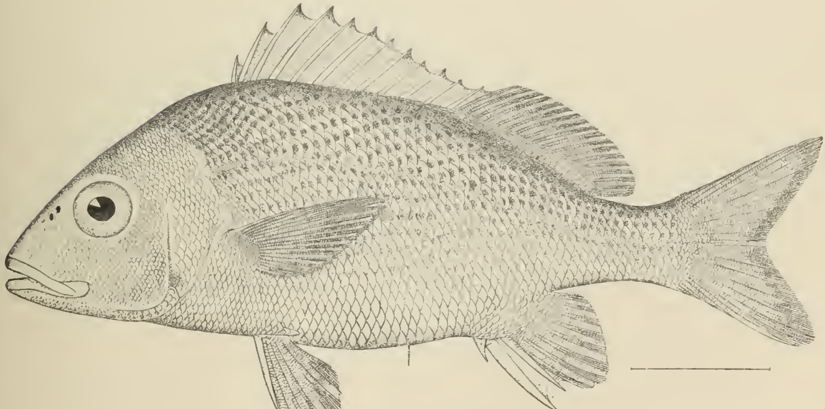
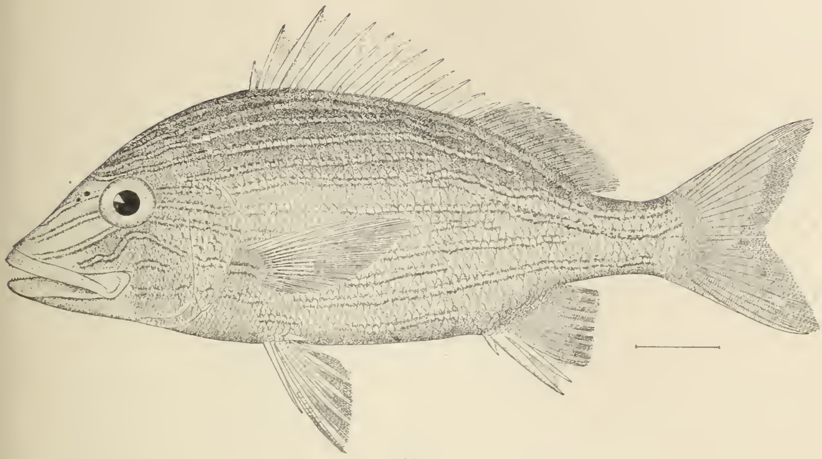


530

529. Hæmulon macrostomum. (P. 1296.)
530. Hæmulon parra. (P. 1297.)



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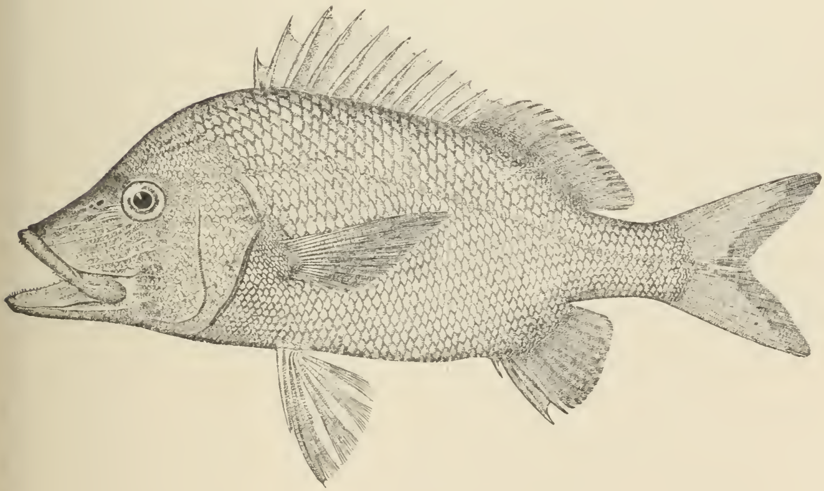
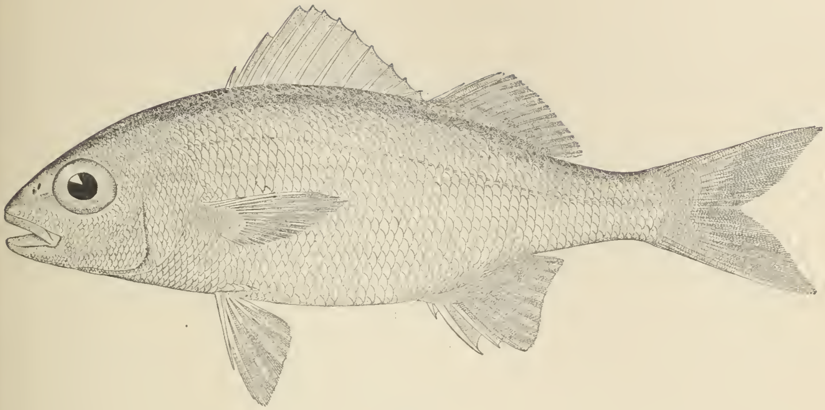


532

531. Hæmulon sciurus. (P. 1303.)
532. Hæmulon plumieri. (P. 1304.)



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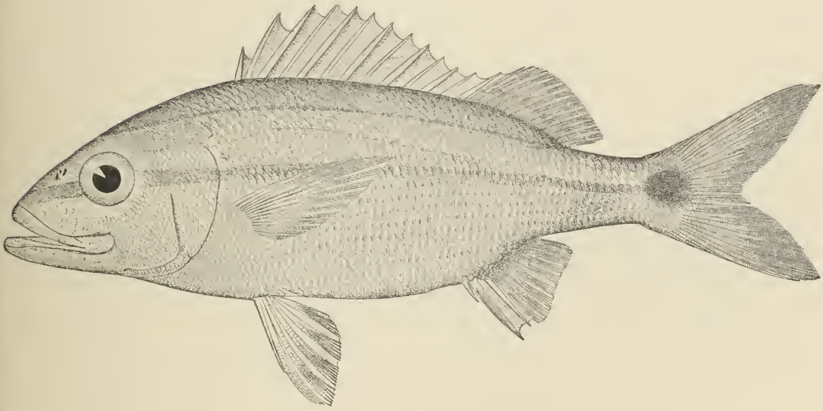
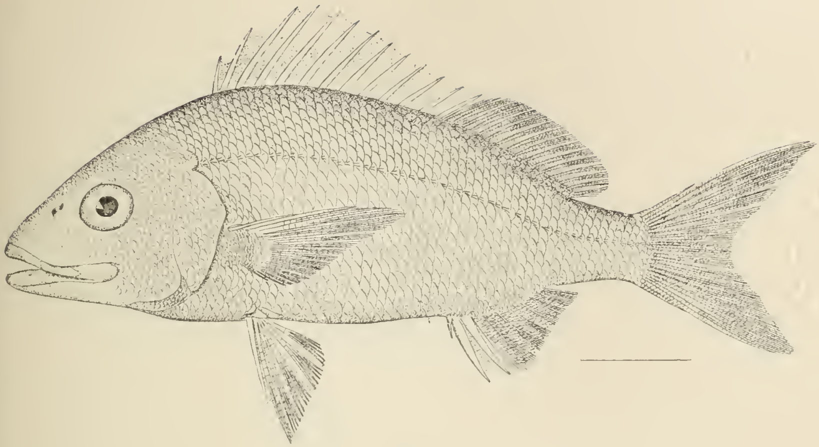


534

533. Brachygenys chrysargyreus. (P. 1307.)
534. Bathystoma rimator. (P. 1308.)



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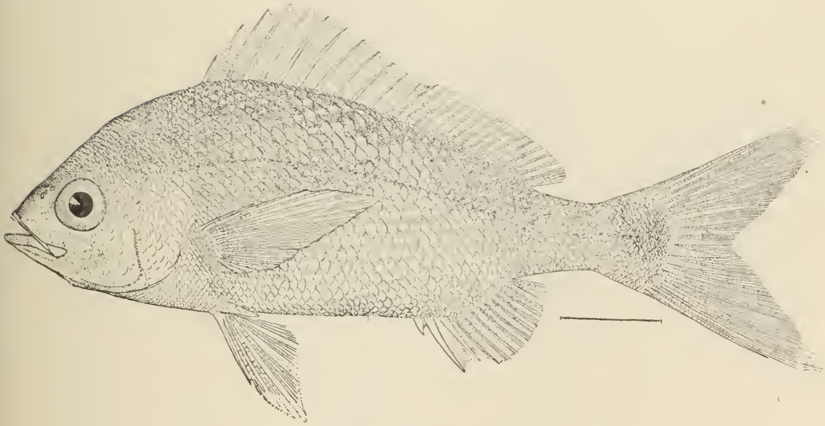
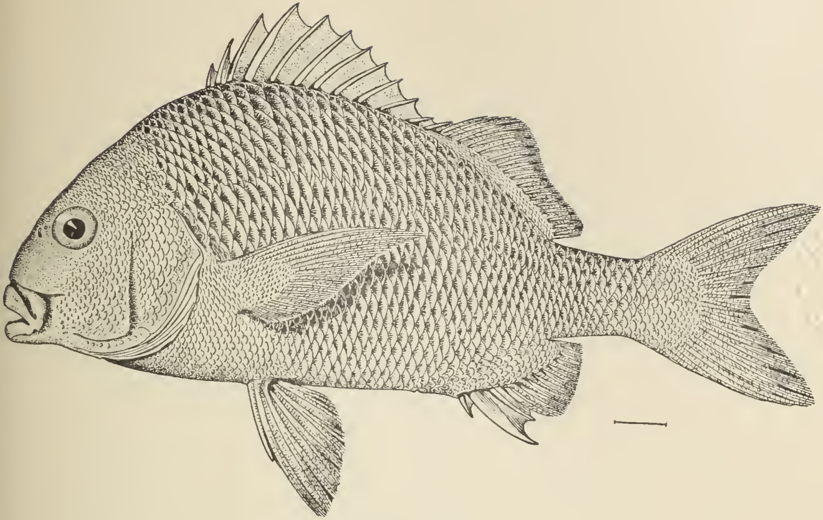


536

535. Bathystoma aurolineatum. (P. 1310.)
536. Lythrulon opalescens. (P. 1312.)



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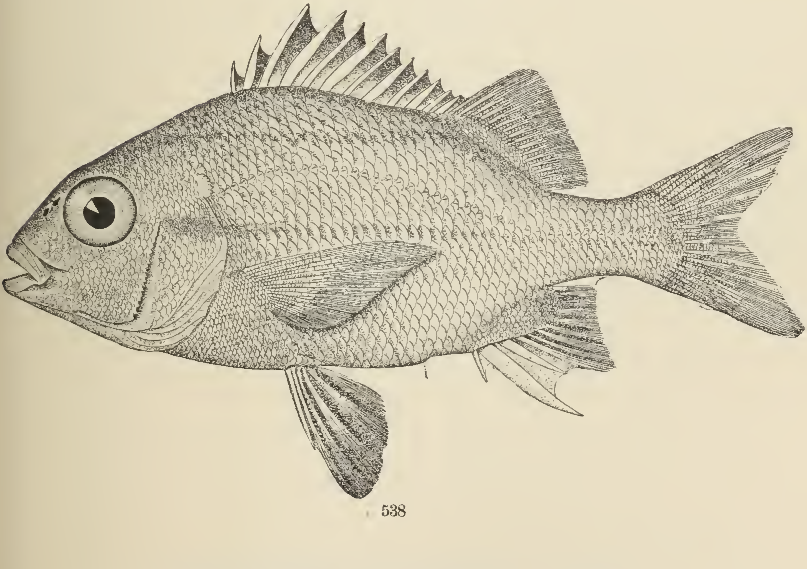
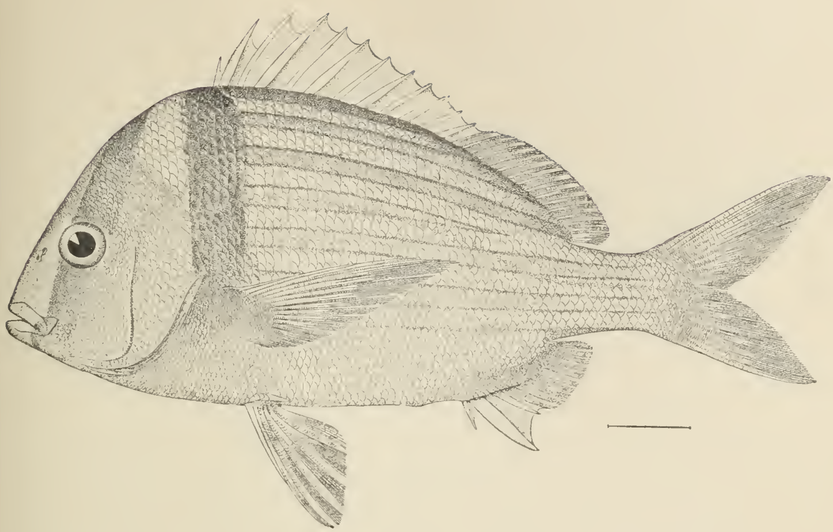


538

537. Anisotremus surinamensis. (P. 1318.)
538. Anisotremus bilineatus. (P. 1319.)



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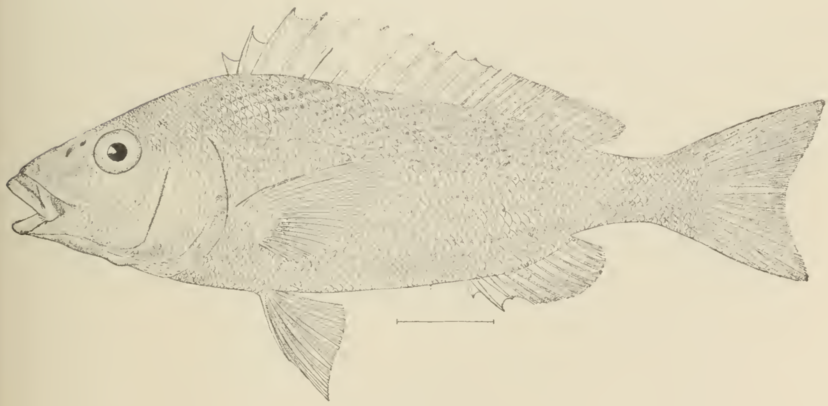
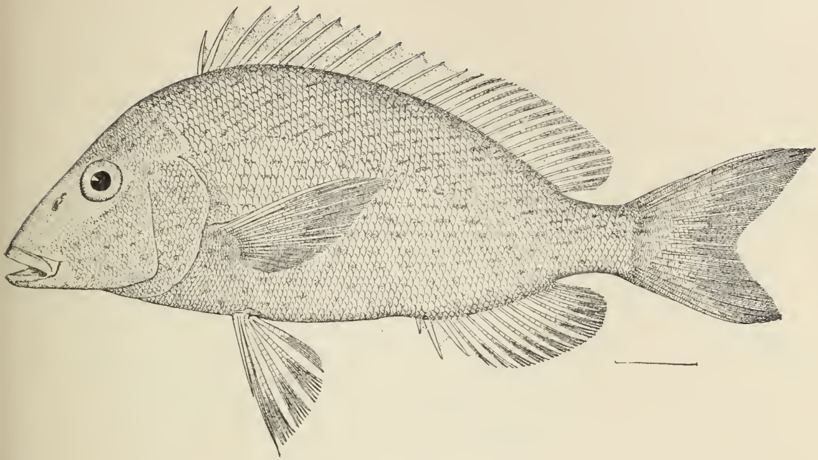


540

539. Anisotremus virginicus. (P. 1322.)
540. Orthopristis reddingi. (P. 1336.)



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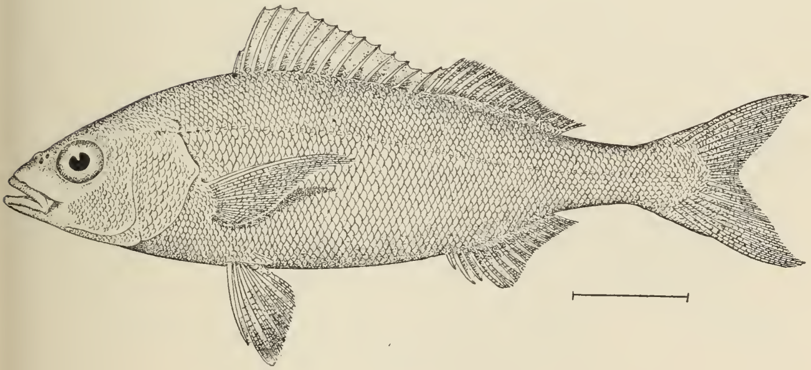
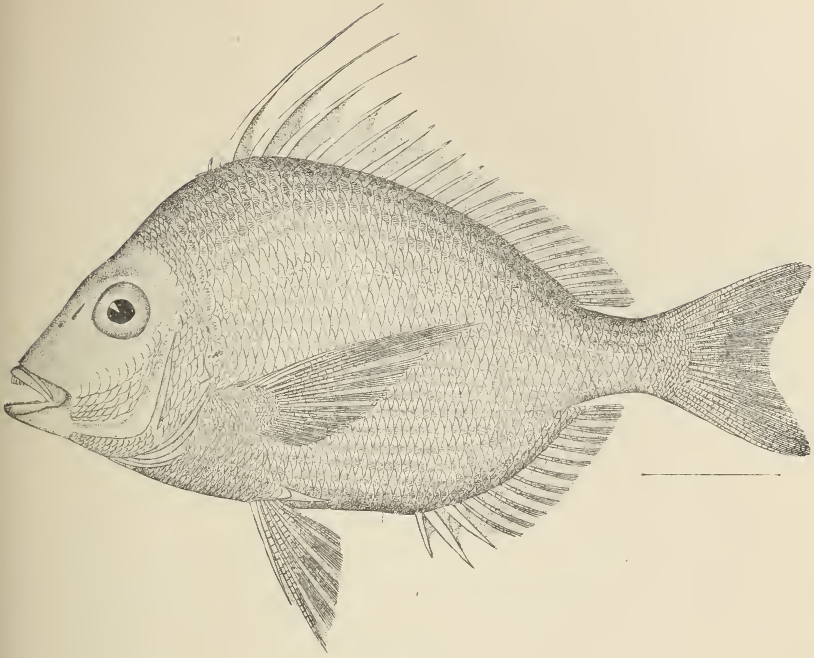


542

541. Orthopristis chrysopterus. (P. 1338.)
542. Microlepidotus inornatus. (P. 1341.)



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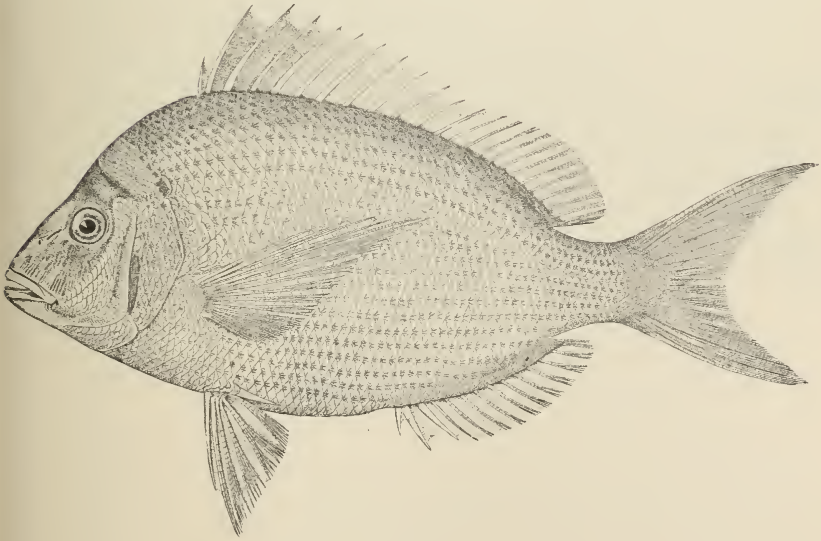
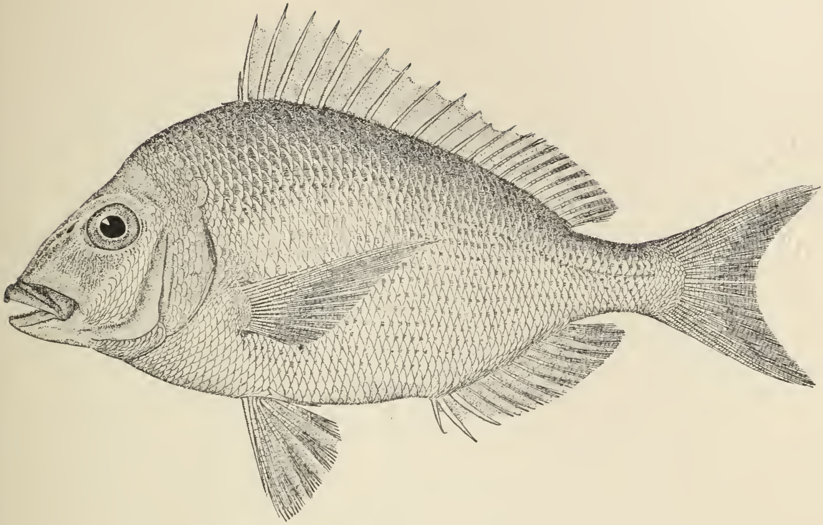


544

543. Otrynter caprinus. (P. 1345.)
544. Stenotomus chrysops. (P. 1346.)



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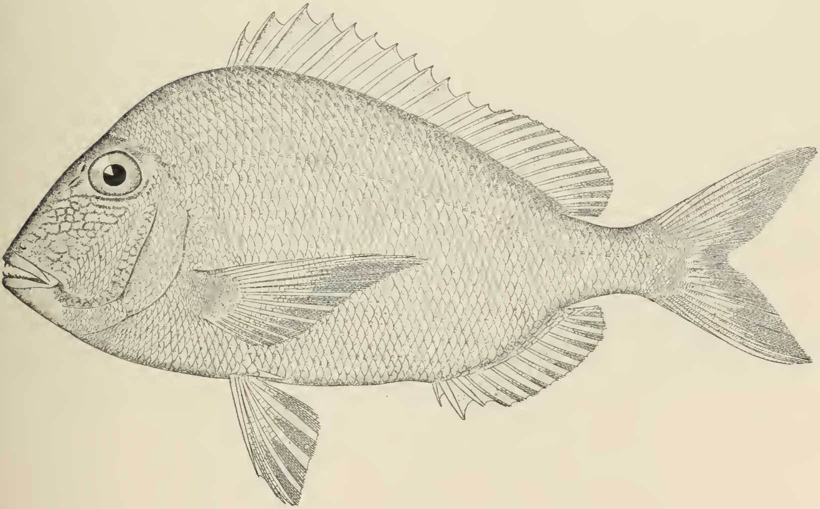
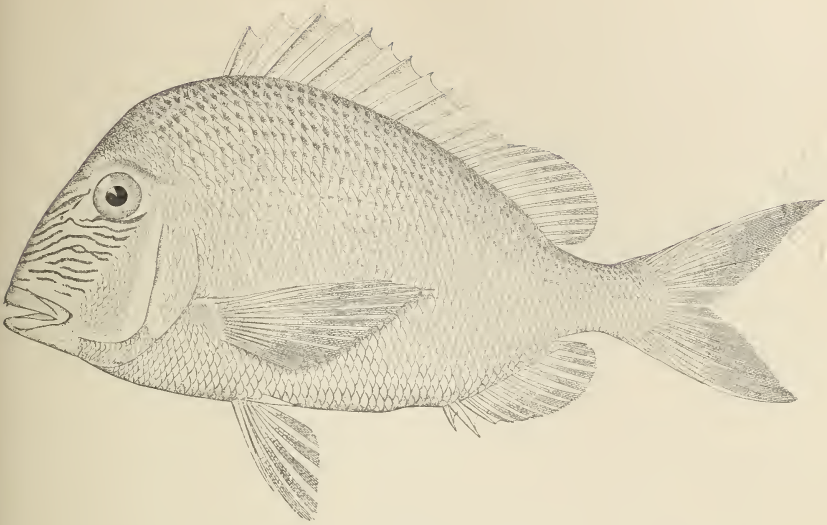


546

545. Stenotomus aculeatus. (P. 1346.)
546. Calamus calamus. (P. 1349.)



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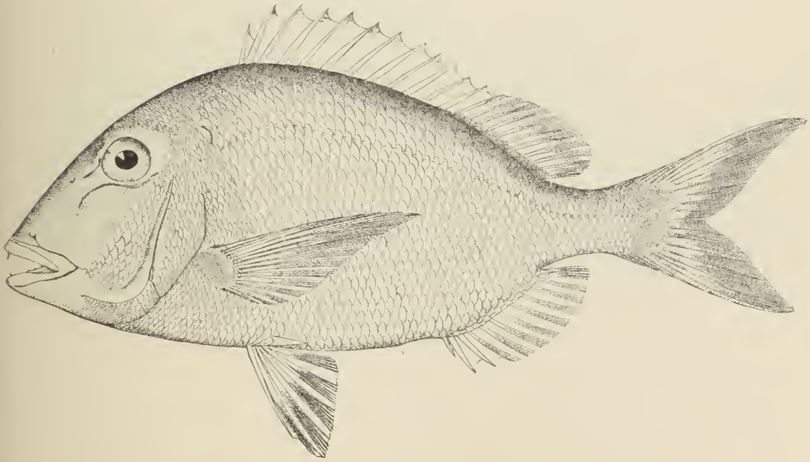
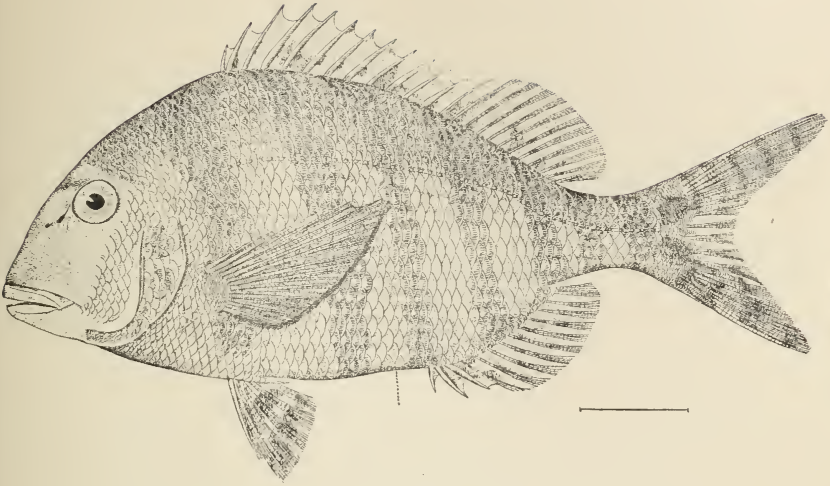


548

547. Calamus proridens. (P. 1350.)
548. Calamus bajonado. (P. 1352.)



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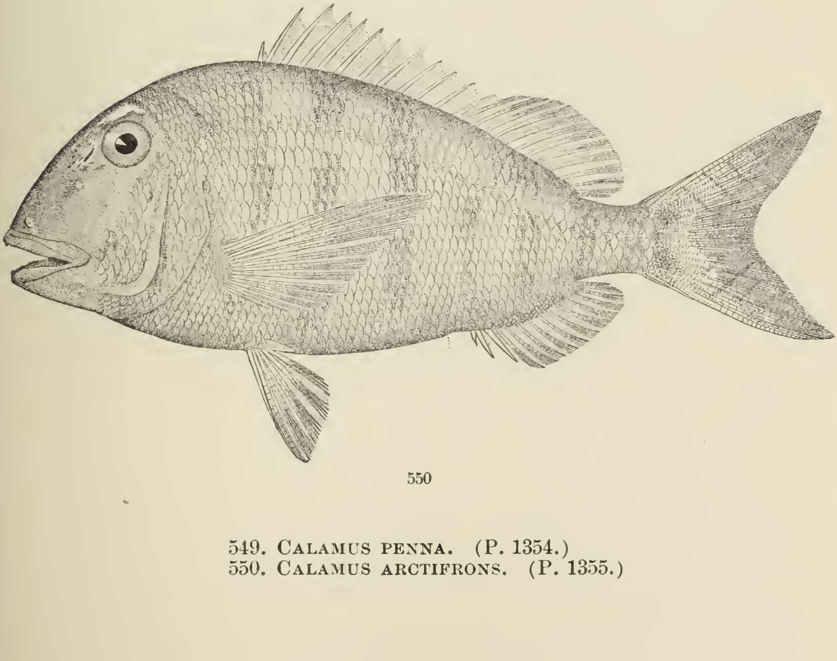

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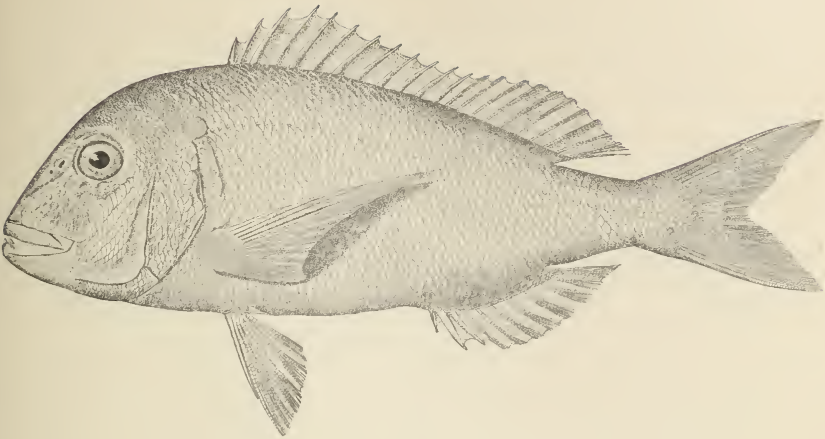
549. Calamus penna. (P. 1354.)
550. Calamus arctifrons. (P. 1355.)



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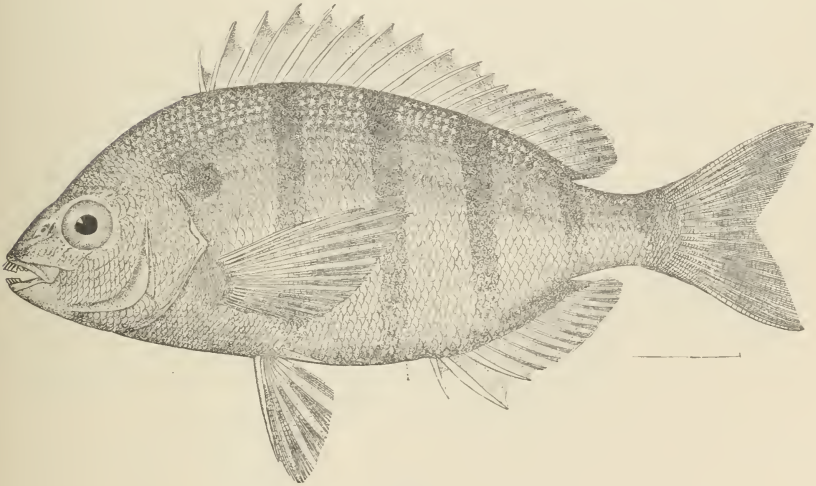
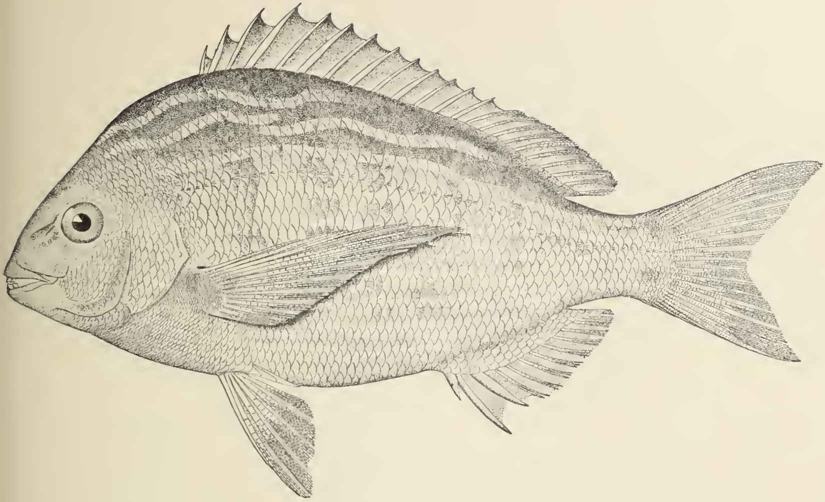


552

551. Pagrus pagrus. (P. 1356.)
552. Lagodon rhomboides. (P. 1358.)



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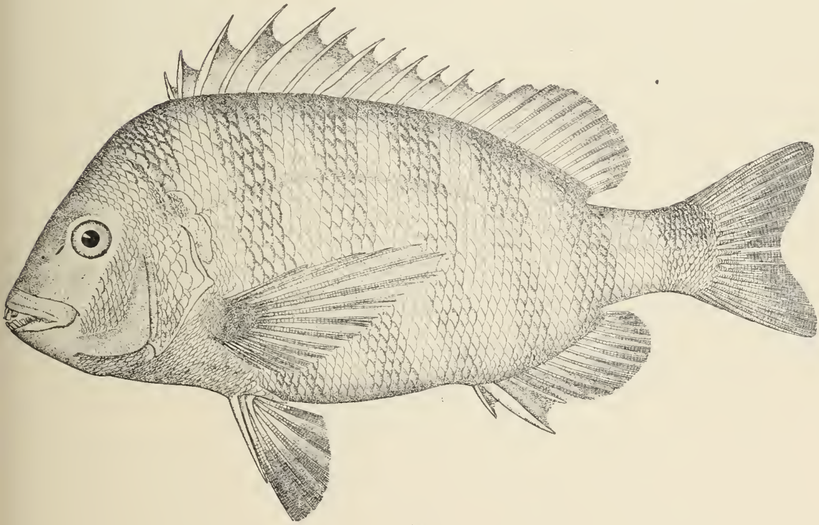
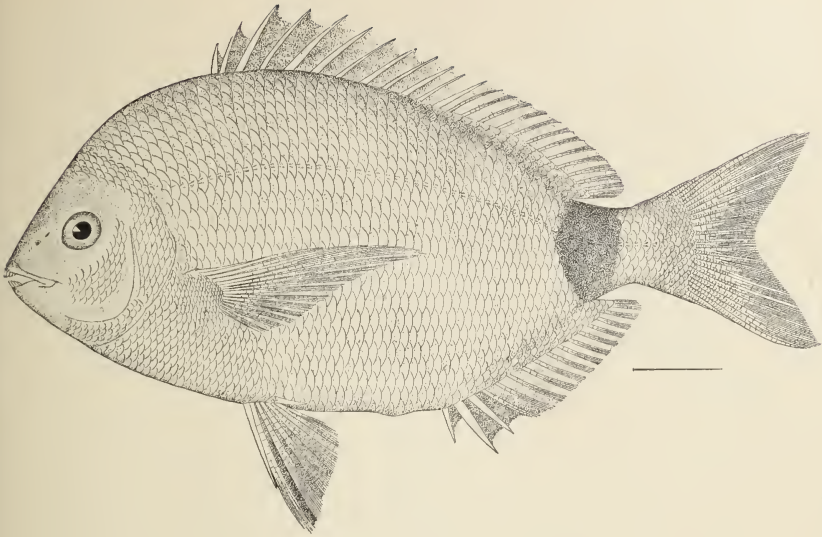


554

553. Archosargus unimaculatus. (P. 1359.)
554. Archosargus probatocephalus. (P. 1361.)



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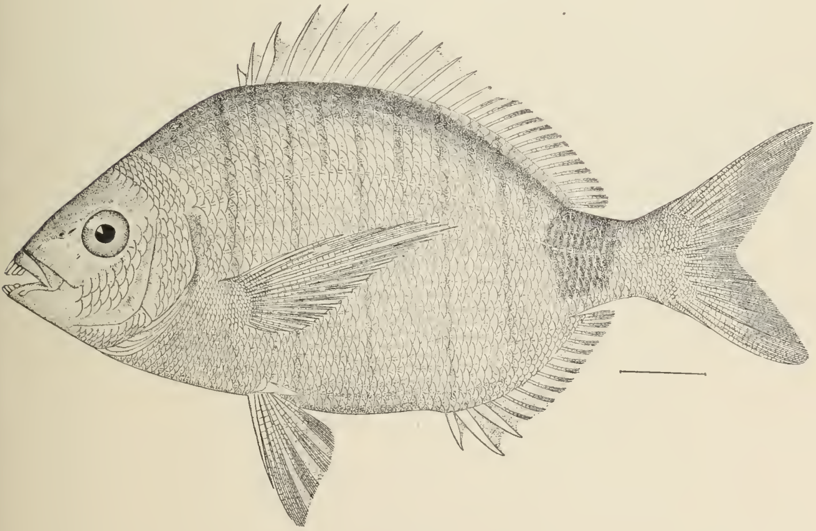
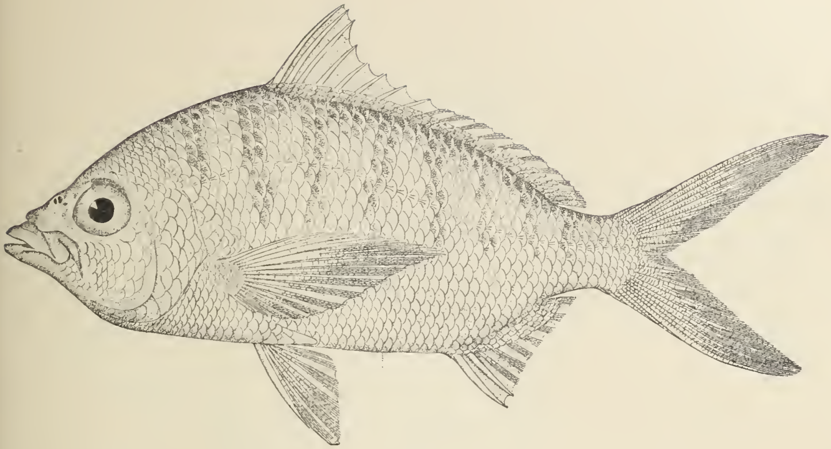


555*a*

555. Diplodus holbrookii. (P. 1362.)
555*a*. Diplodus holbrookii; young. (P. 1362.)



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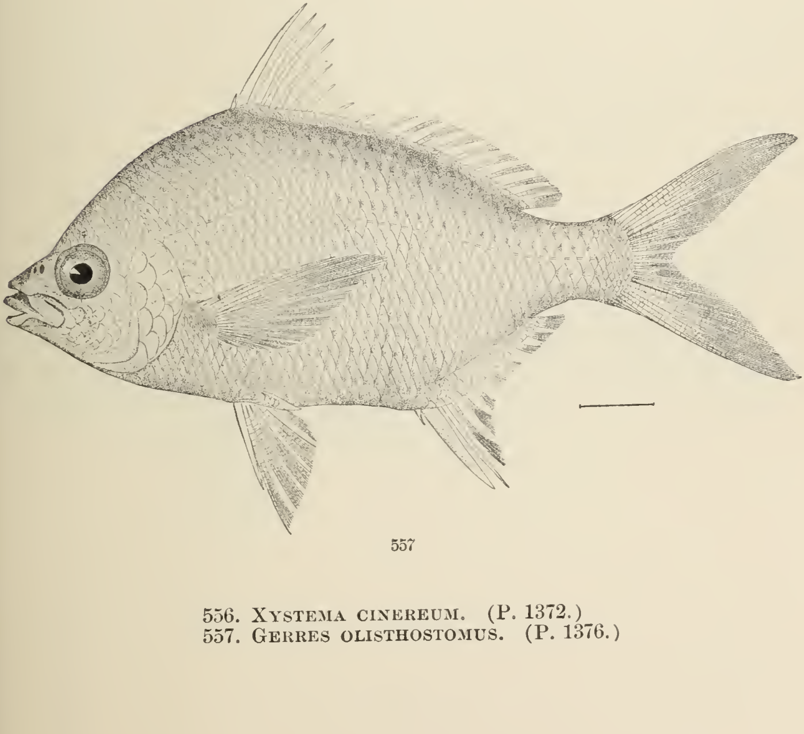
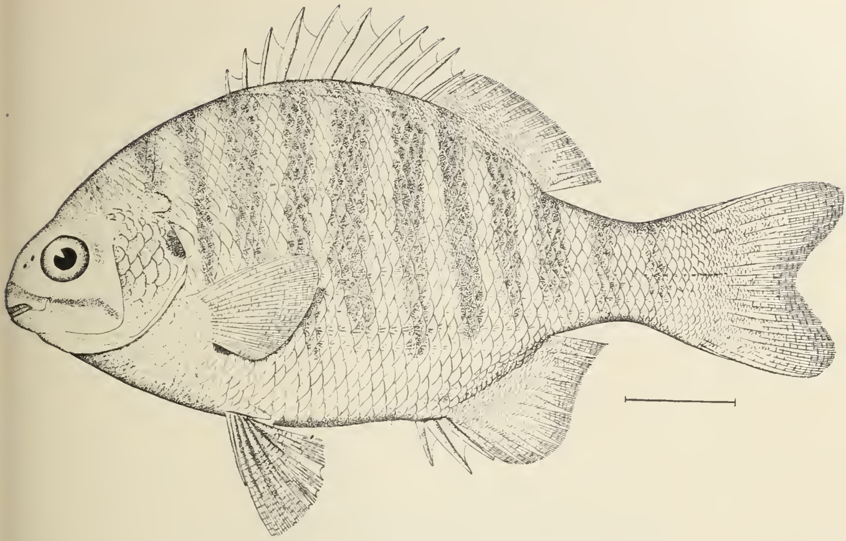


557

556. Xystema cinereum. (P. 1372.)
557. Gerres olisthostomus. (P. 1376.)



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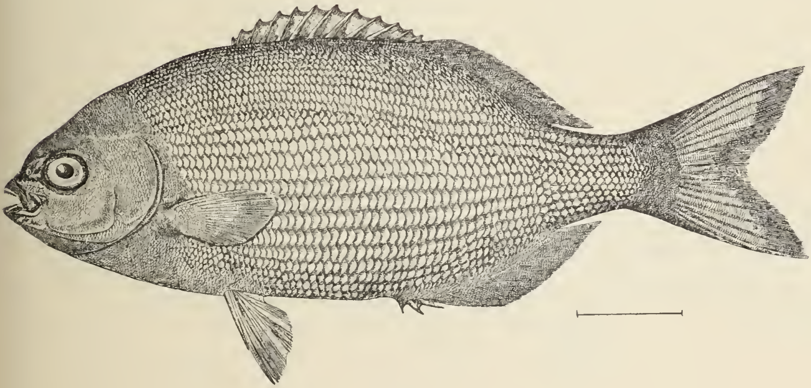
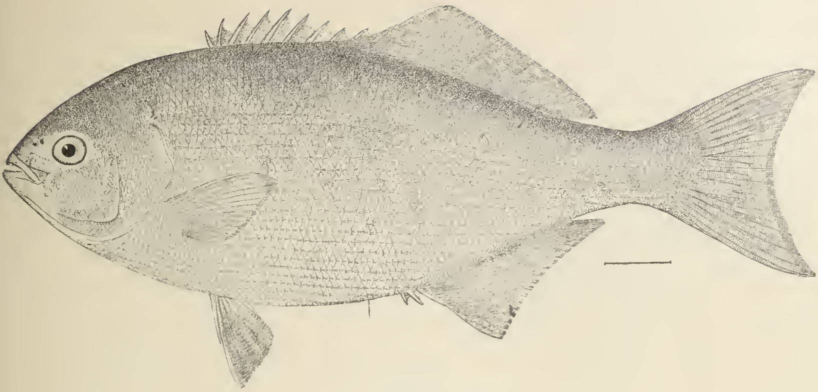


559

558. Hermosilla azurea. (P. 1383.)
559. Kyphosus sectatrix. (P. 1387.)



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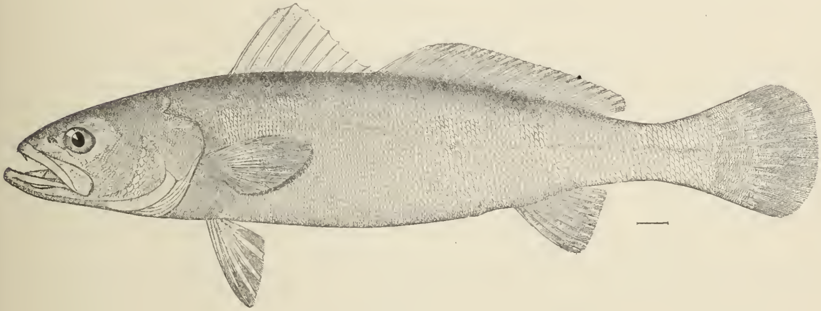

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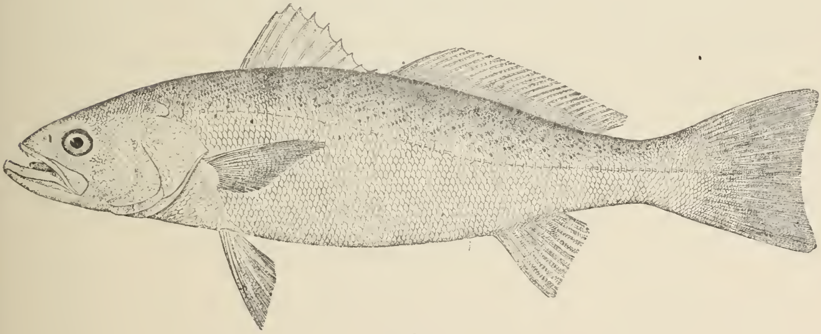
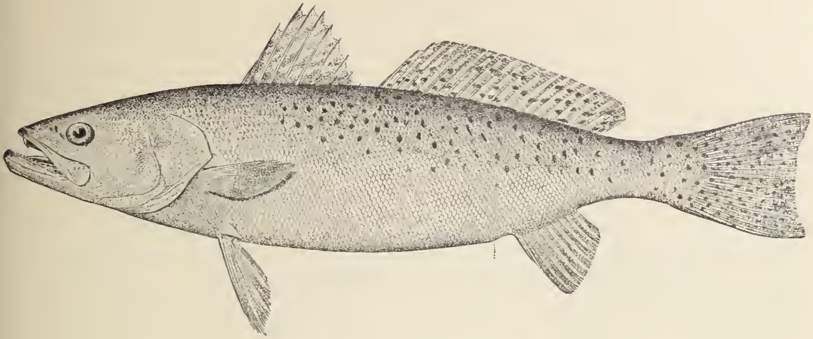


562

560. Medialuna californiensis. (P. 1391.)
561. Cynoscion nothus. (P. 1406.)
562. Cynoscion regalis. (P. 1407.)



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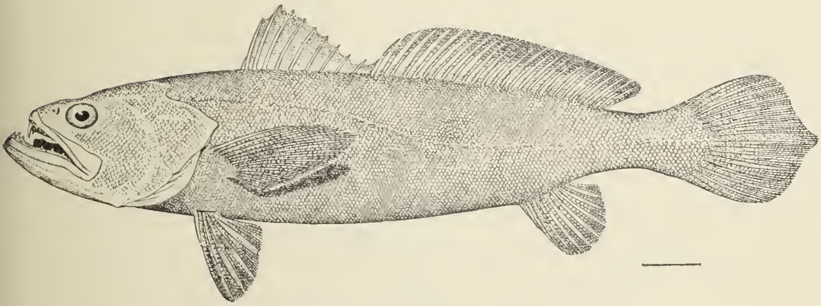

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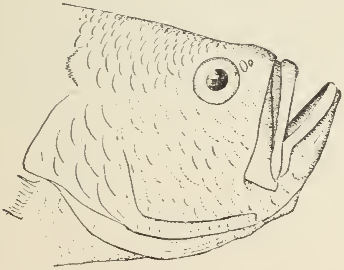
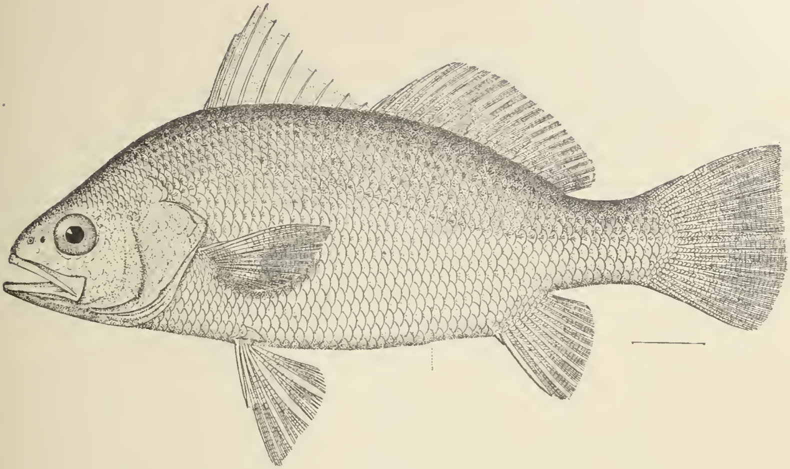


565

563. Cynoscion nebulosus. (P. 1409.)
564. Sagenichthys ancylodon. (P. 1416.)
565. Larimus argenteus. (P. 1421.)



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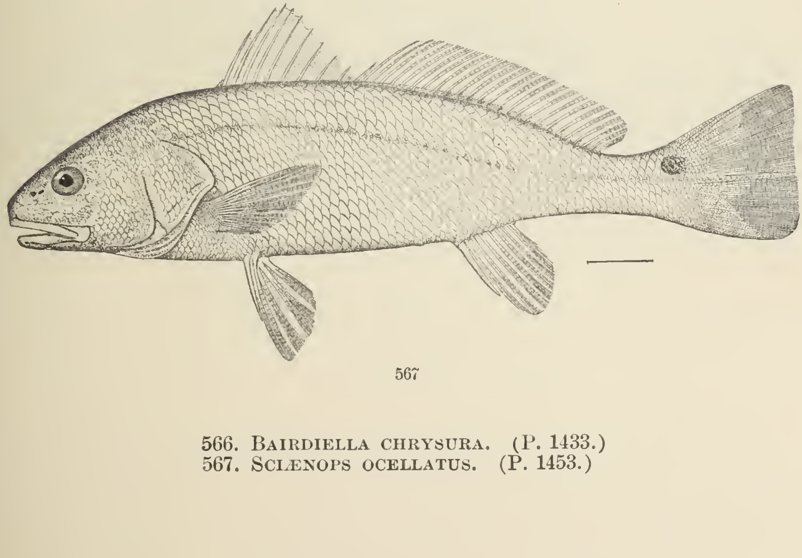
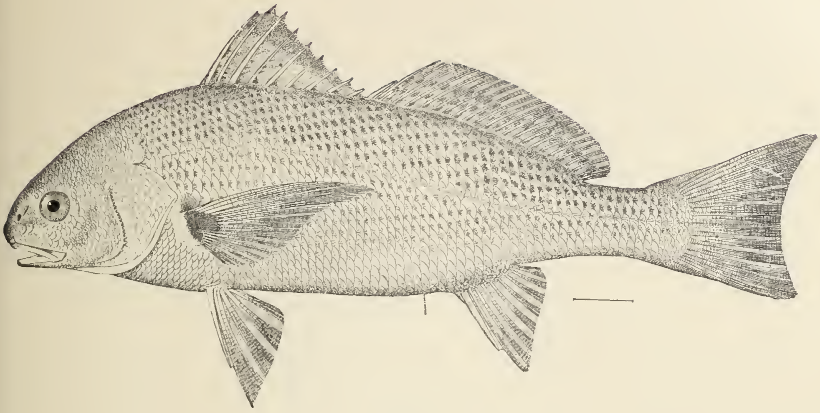


567

566. Bairdiella chrysura. (P. 1433.)
567. Sciænops ocellatus. (P. 1453.)



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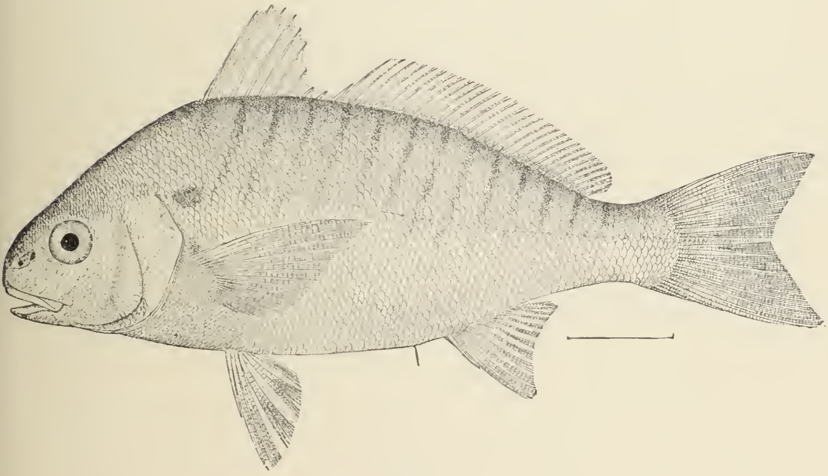
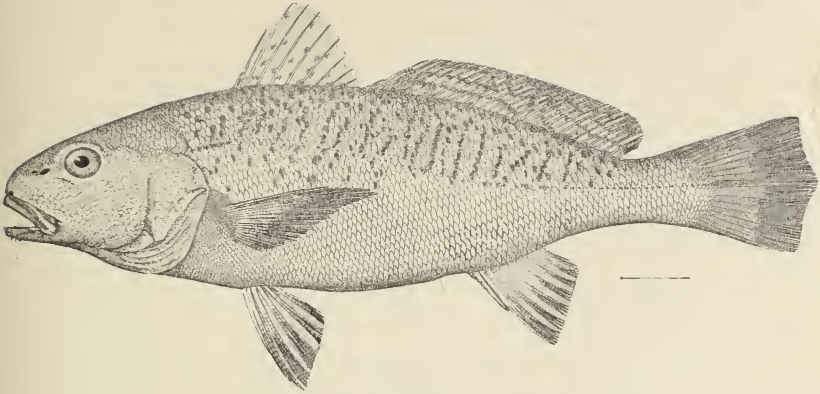


569

568. Roncador stearnsi. (P. 1457.)
569. Leiostomus xanthurus. (P. 1458.)



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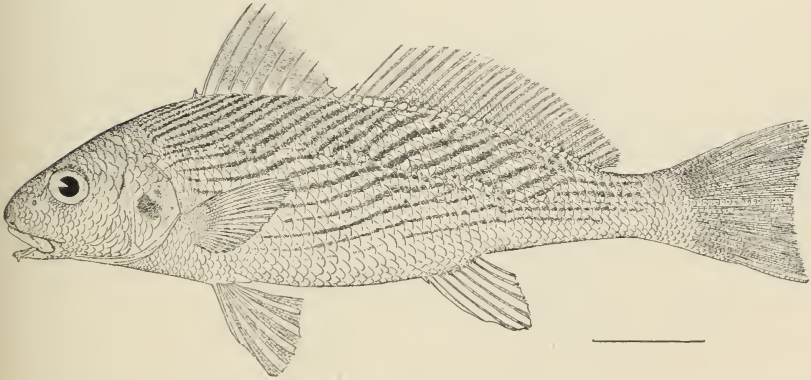
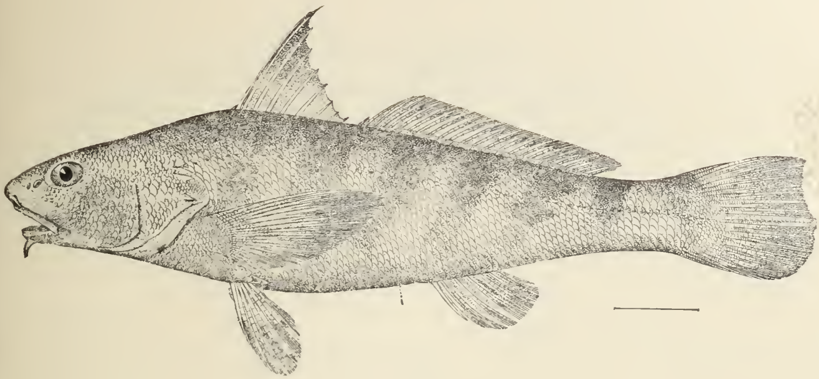


571

570. Micropogon undulatus. (P. 1461.)
571. Umbrina sinaloæ. (P. 1468.)



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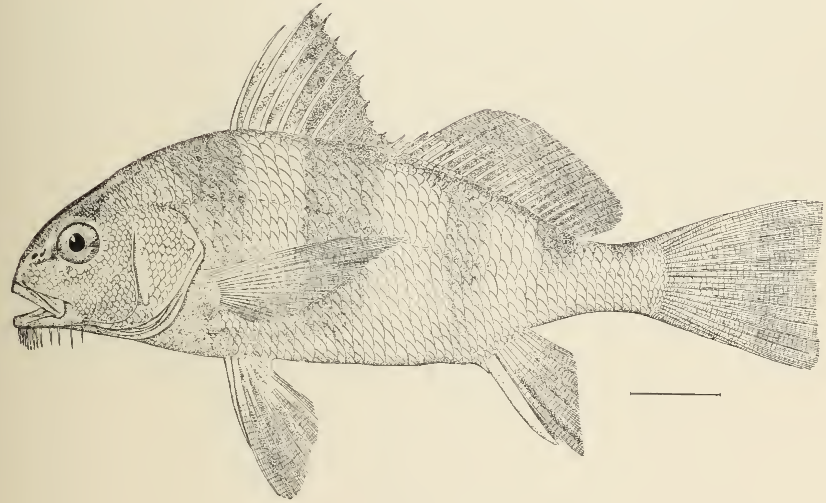
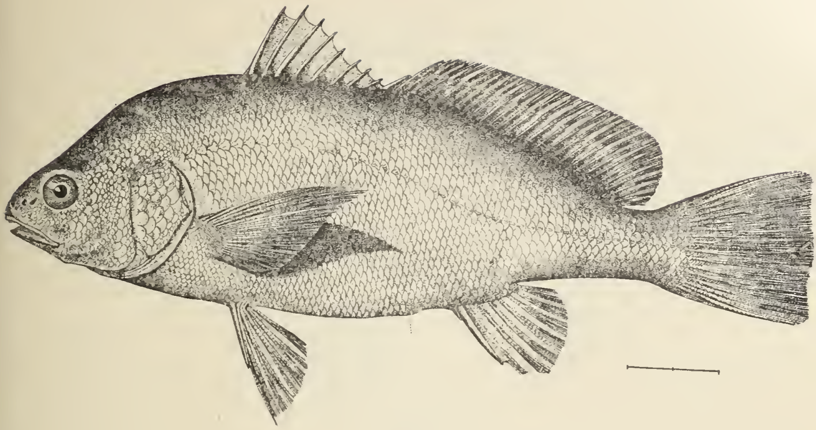


573

572. MENTICIRRHUS AMERICANUS. (P. 1474.)
573. POGONIAS CHROMIS. (P. 1482.)



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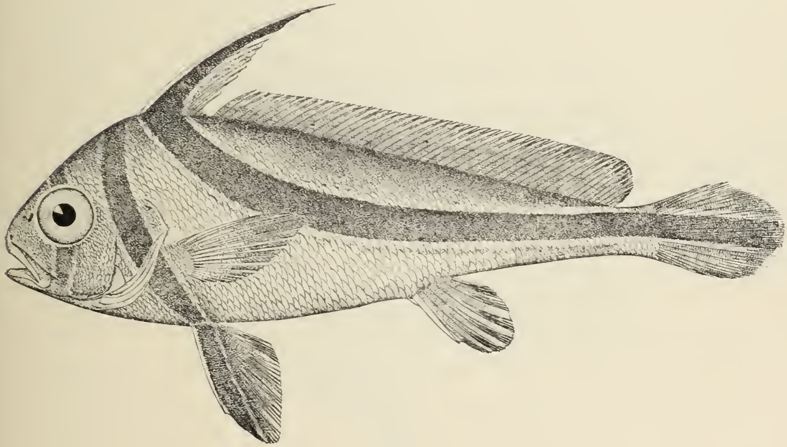
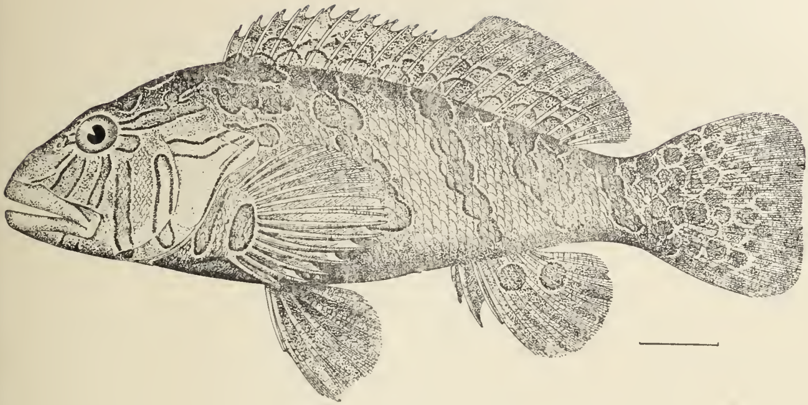


575

574. Aplodinotus grunniens. (P. 1484.)
575. Eques lanceolatus. (P. 1489.)



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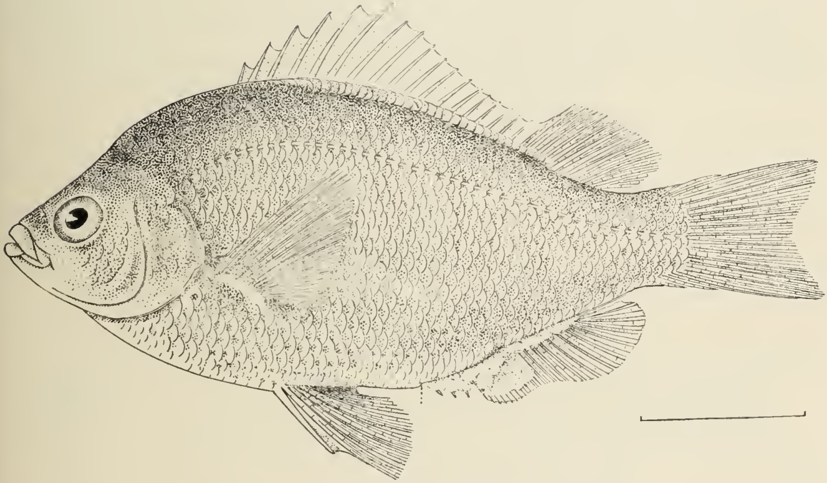
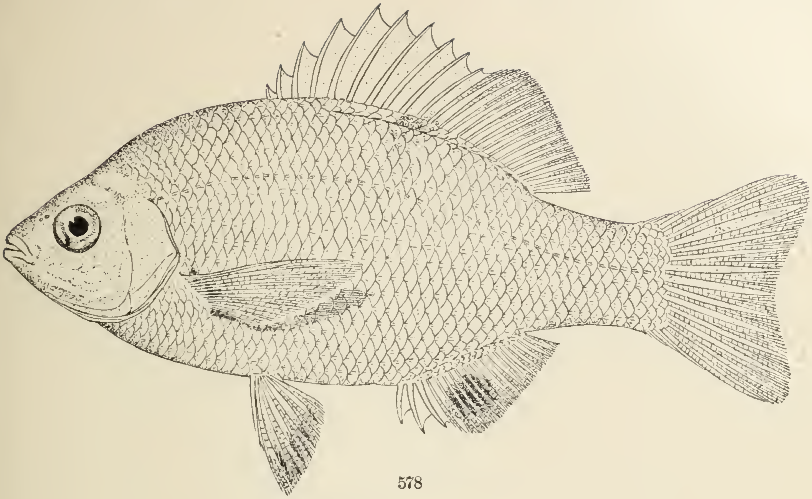


577

576. Cirrhites rivulatus. (P. 1491.)
577. Hysterocarpus traski. (P. 1496.)



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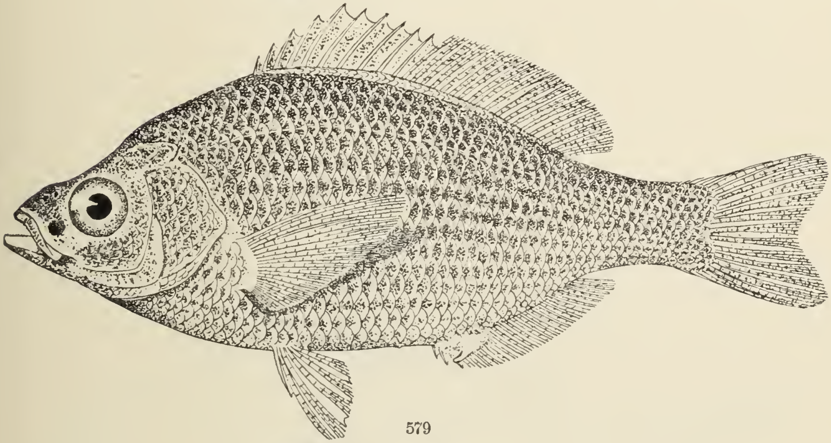

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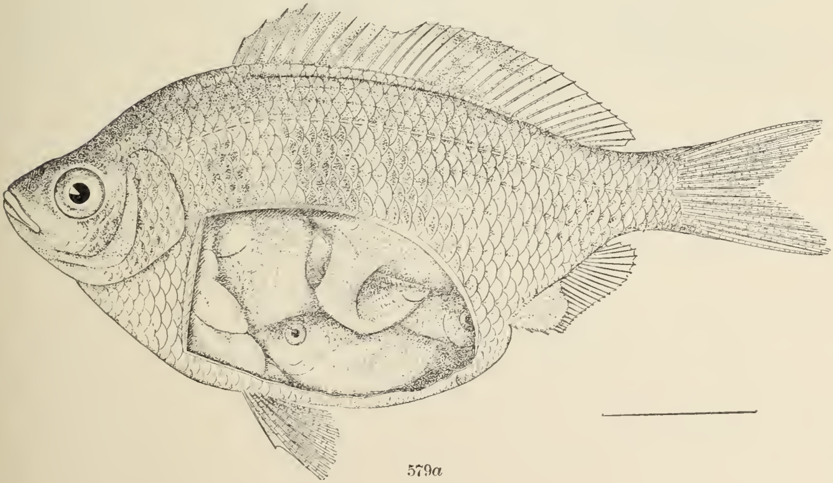
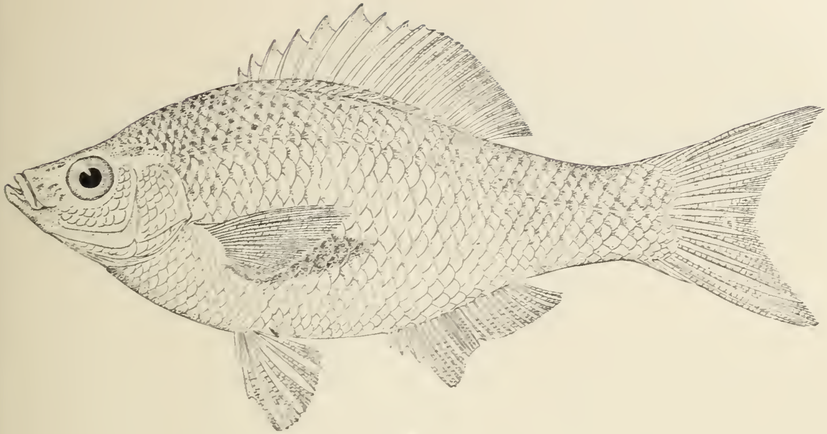


579*a*

578. Abeona minima. (P. 1497.)
579. Cymatogaster aggregatus. (P. 1498.)
579*a*. Cymatogaster aggregatus; female. (P. 1498.)



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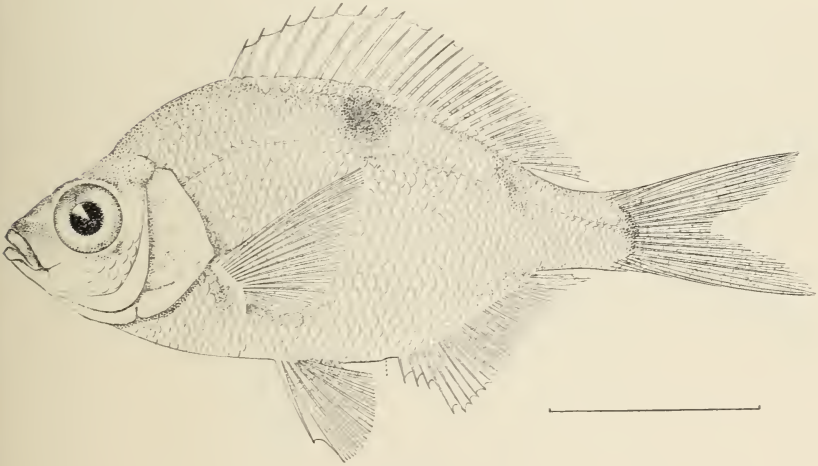
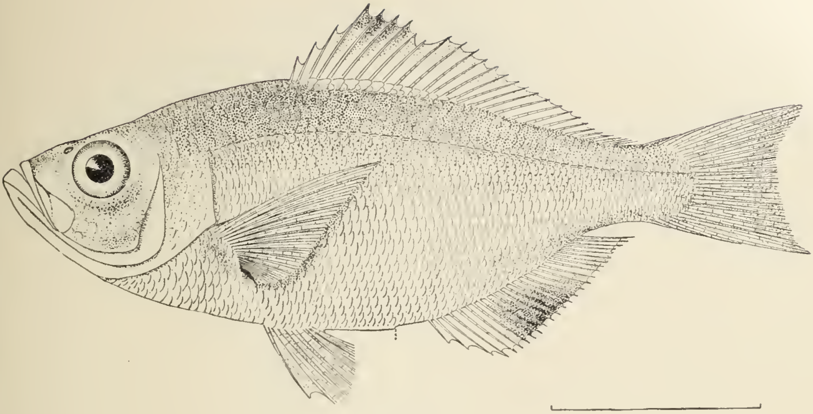


581

580. Brachyistius frenatus. (P. 1499.)
581. Zalembius rosaceus. (P. 1500.)



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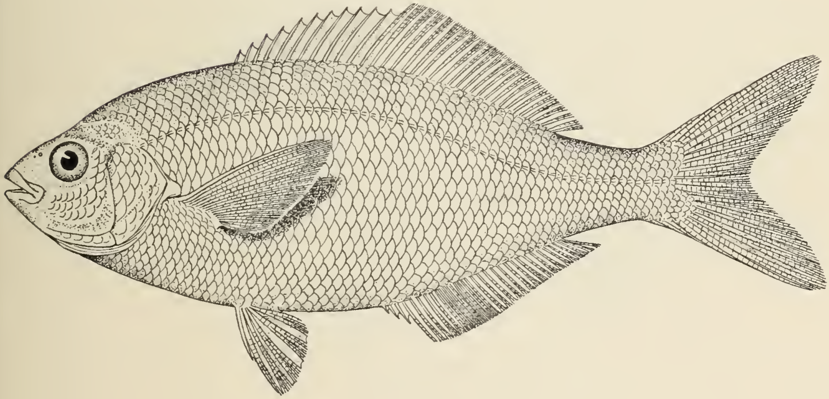
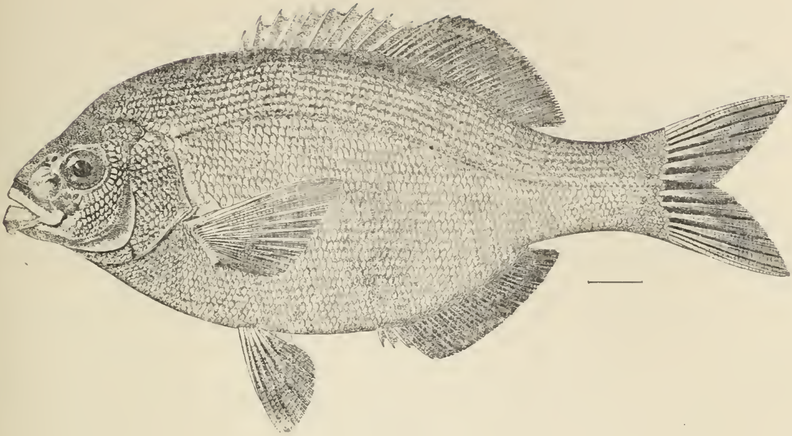


583

582. HYPOCRITICHTHYS ANALIS. (P. 1500.)
583. PHANERODON FURCATUS. (P. 1506.)



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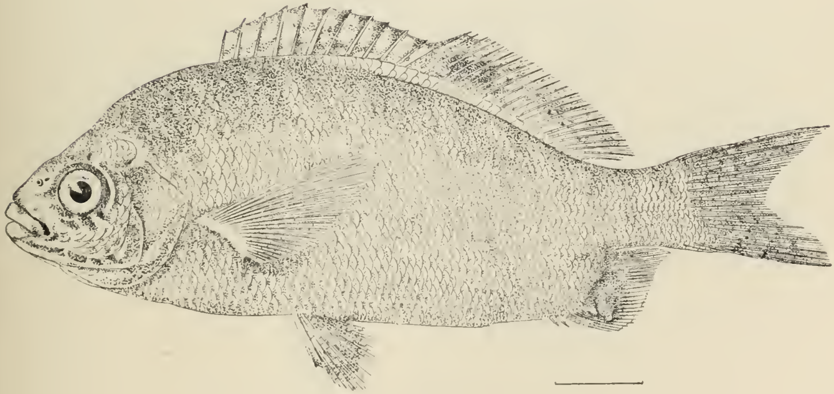
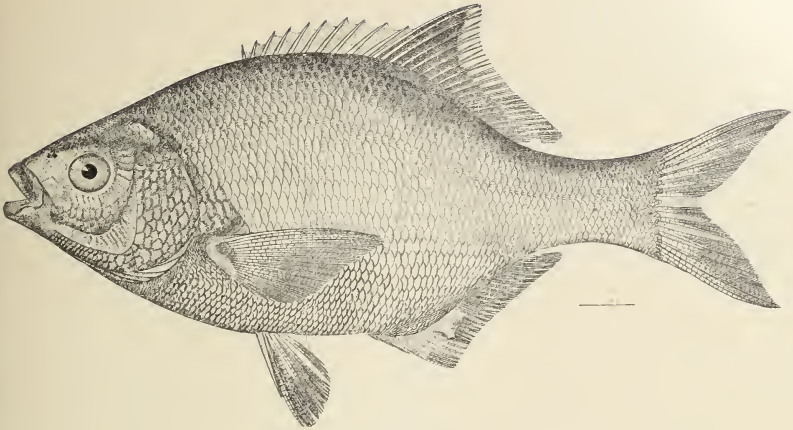


585

584. Rhacochilus toxotes. (P. 1507.)
585. Hypsurus caryi. (P. 1508.)



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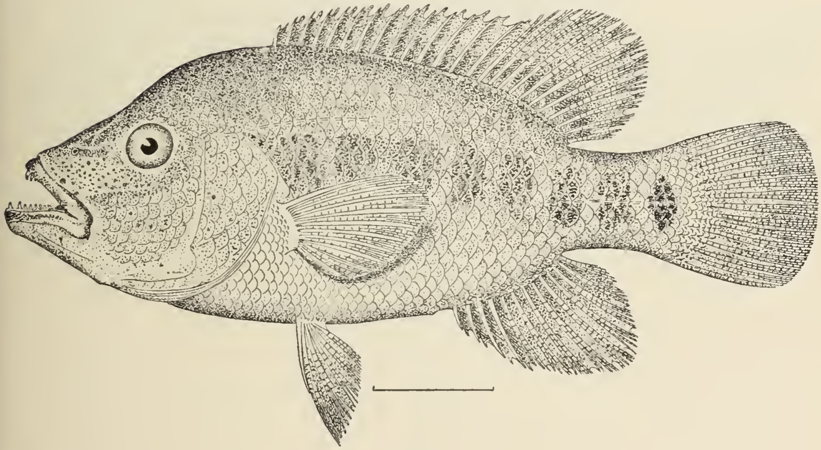
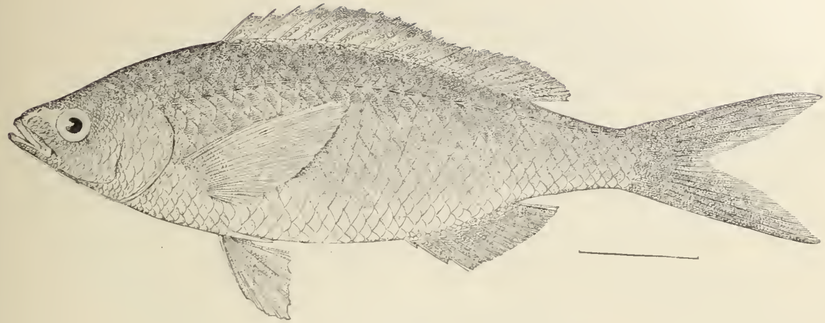


587

586. Damalichthys argyrosomus. (P. 1509.)
587. Cichlasoma bartoni. (P. 1515.)



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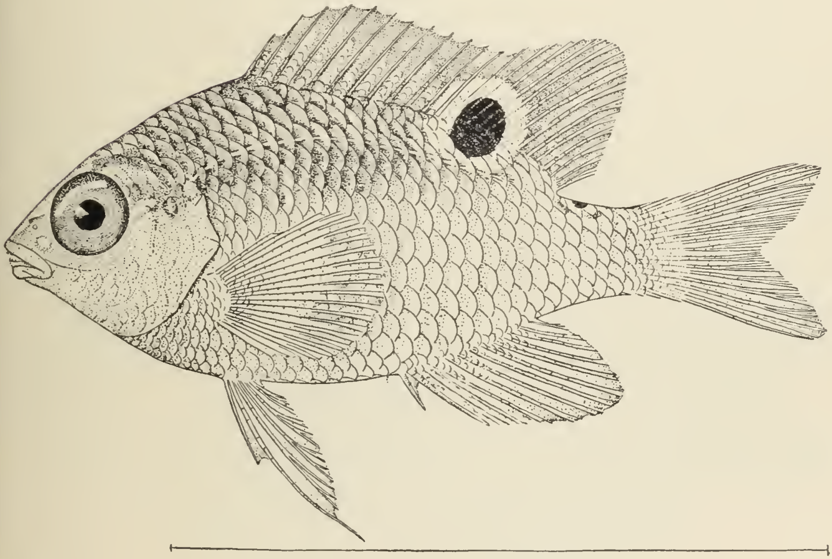
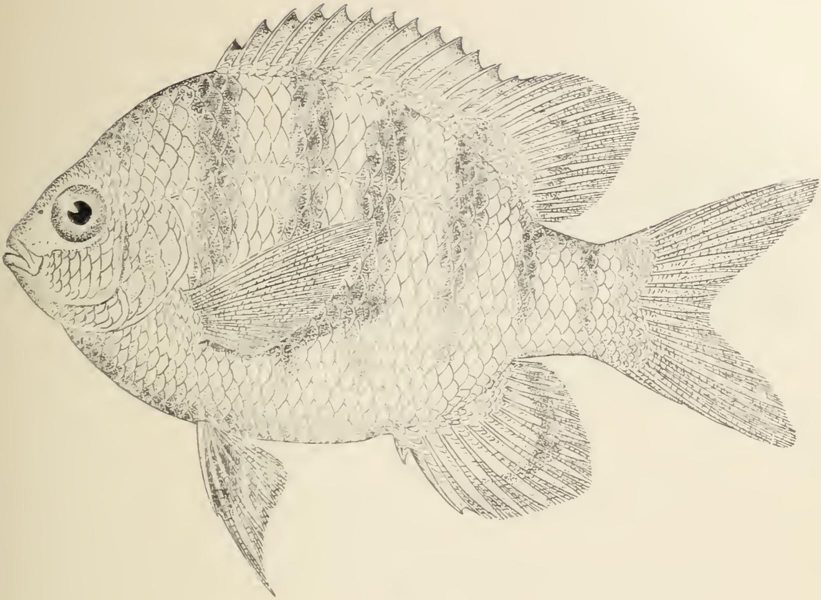


589

588. Azurina hirundo. (P. 1544.)
589. Eupomacentrus flavilatus. (P. 1557.)



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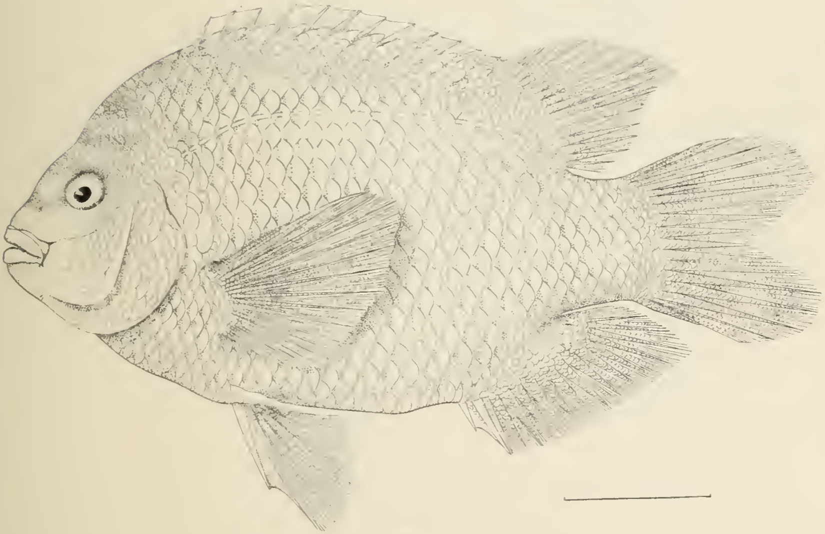
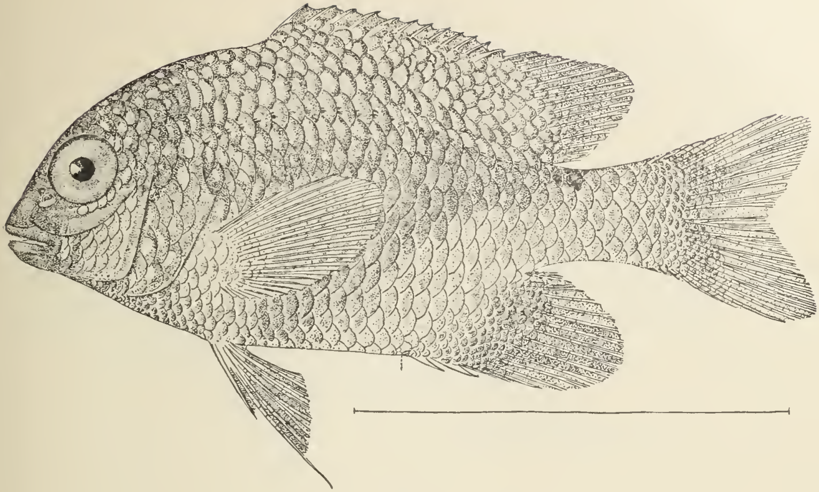


591

590. Abudefduf saxatilis. (P. 1561.)
591. Hypsypops rubicundus. (P. 1564.)



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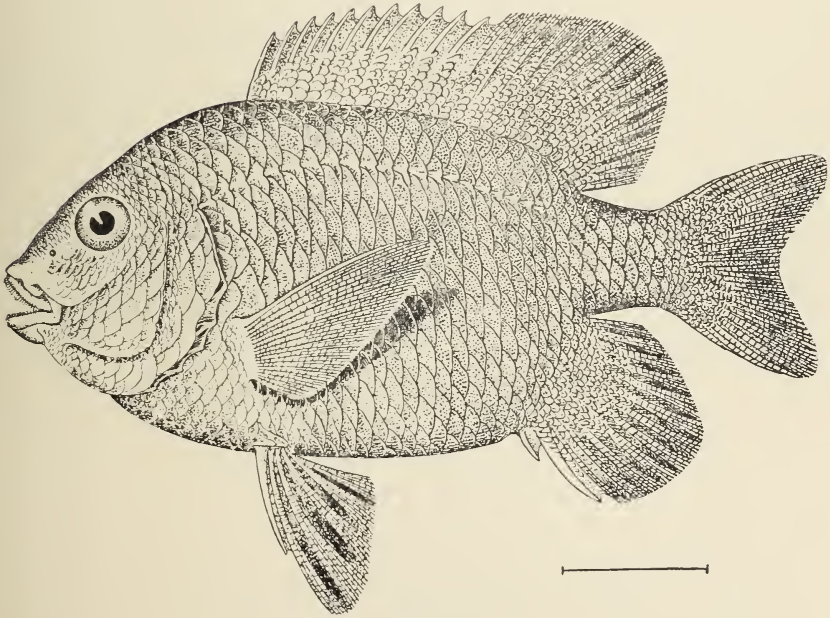
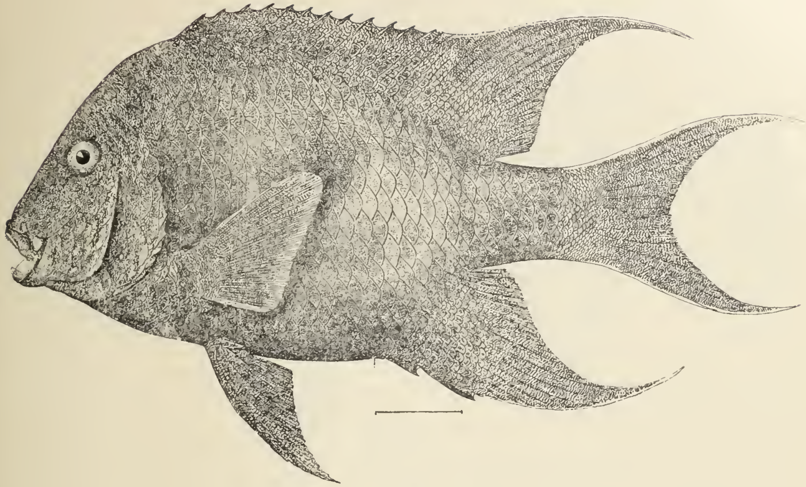


593

592. Microspathodon bairdii. (P. 1566.)
593. Microspathodon chrysurus. (P. 1567.)



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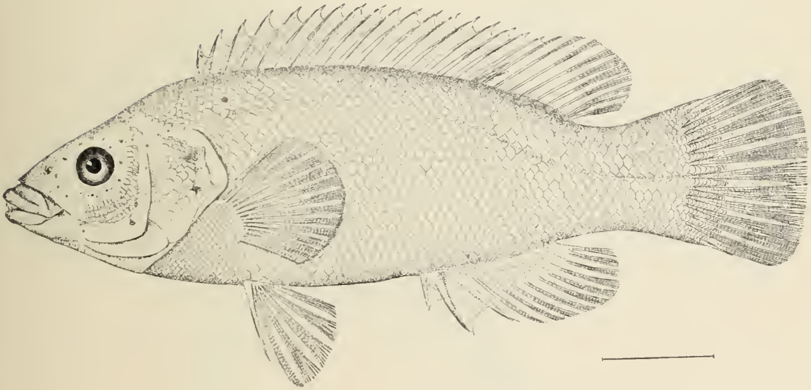
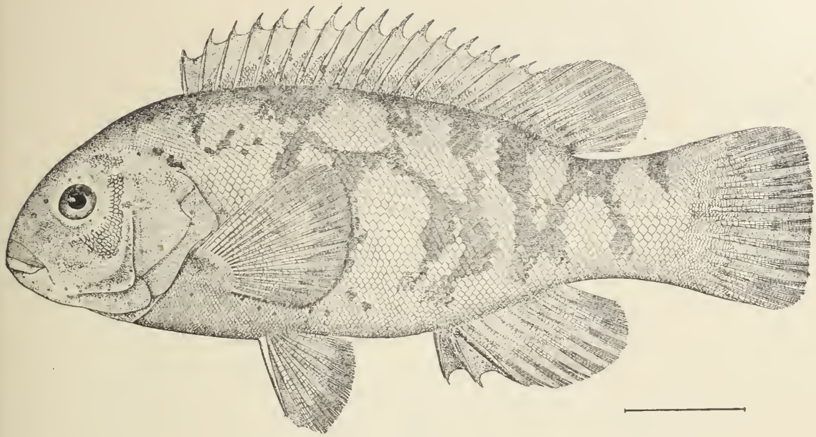


595

594. Microspathodon dorsalis. (P. 1568.)
595. Tautogolabrus adspersus. (P. 1577.)



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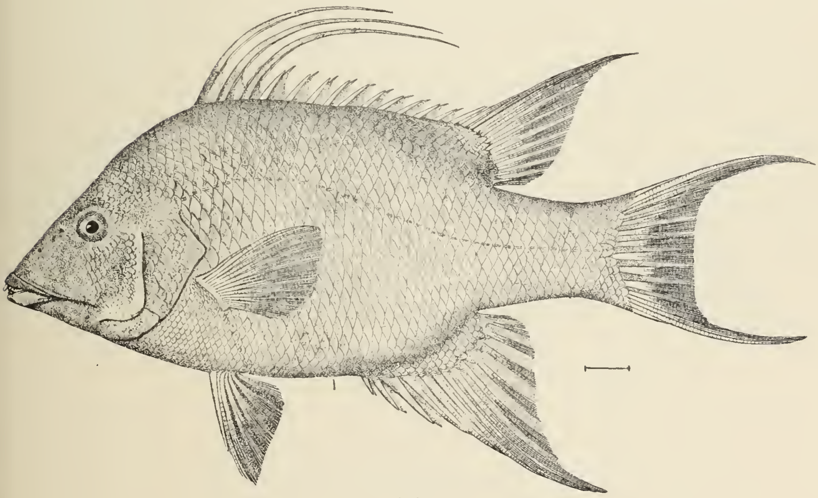
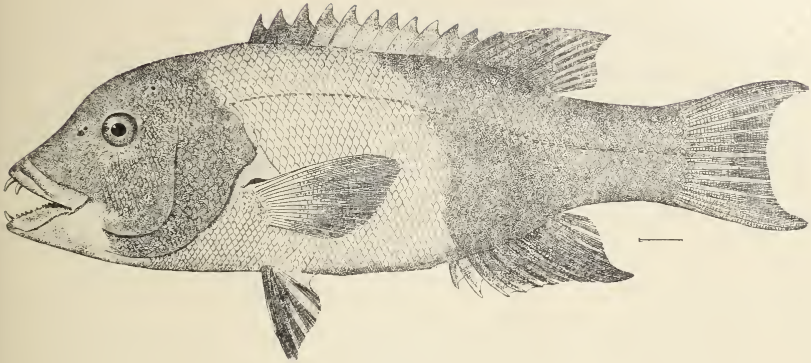


597

596. Tautoga onitis. (P. 1578.)
597. Lachnolaimus maximus. (P. 1579.)



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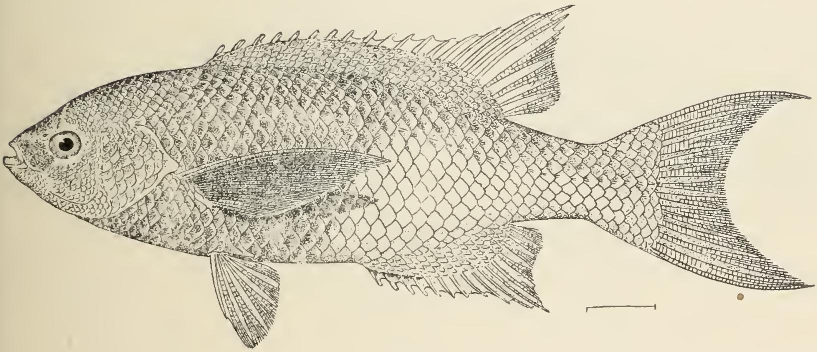
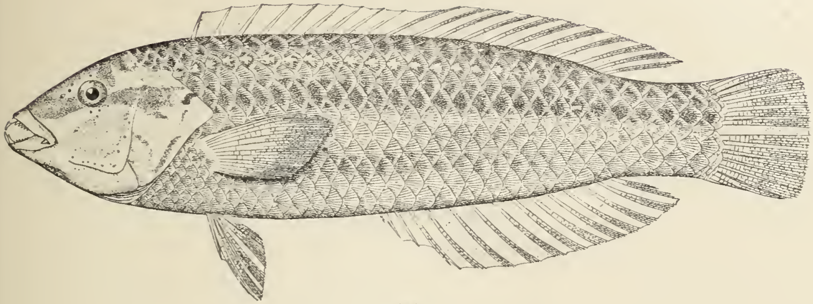


599

598. Pimelometopon pulcher. (P. 1585.)
599. Clepticus parræ. (P. 1586.)



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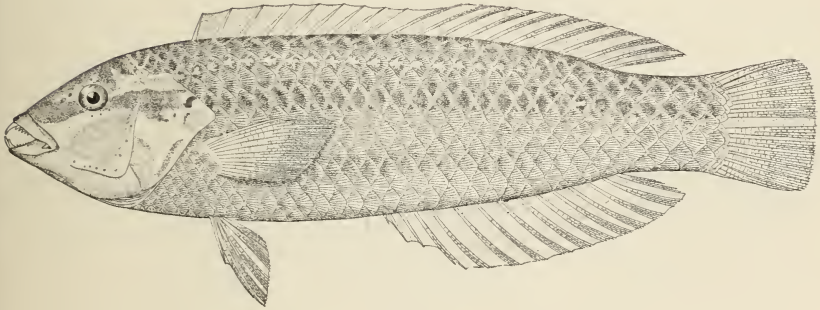
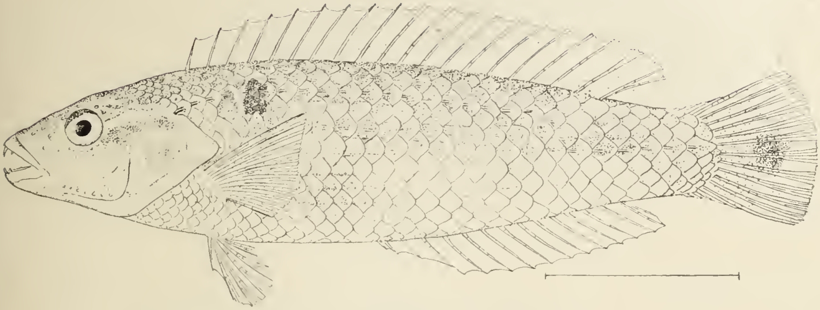


601

600. Iridio radiatus. (P. 1590.)
601. Iridio bivittatus. (P. 1595.)



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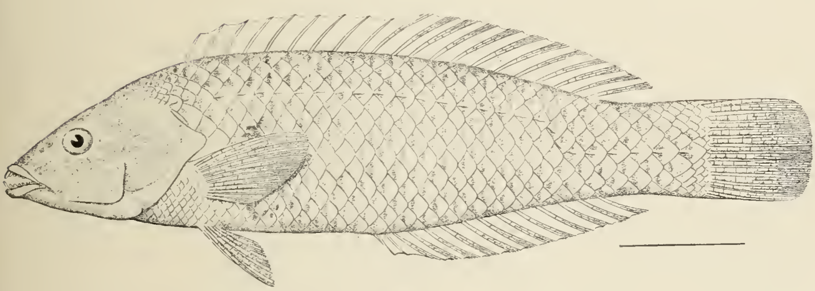
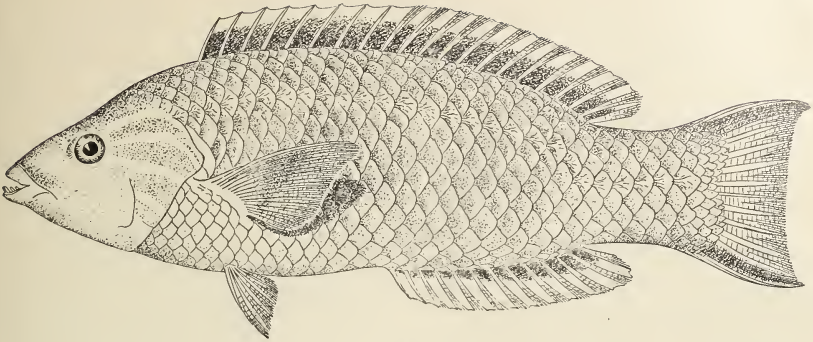


603

602. Iridio dispilus. (P. 1597.)
603. Emmeekia venusta. (P. 1602.)



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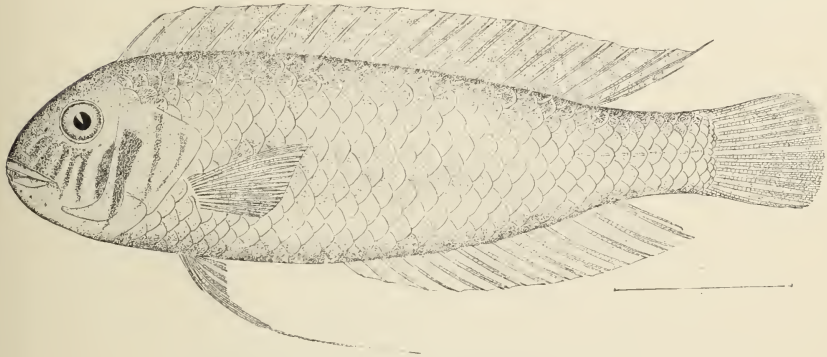

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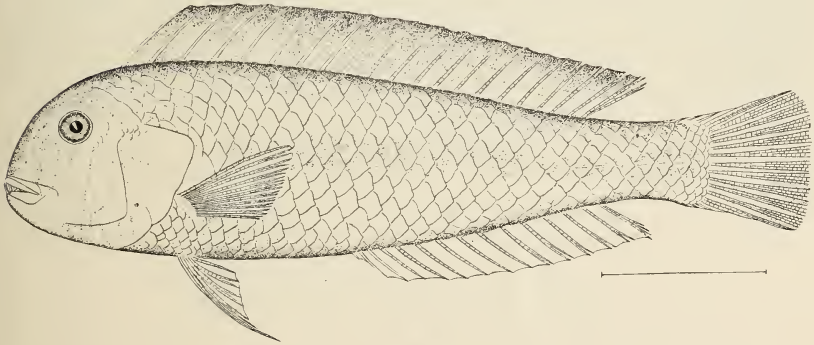
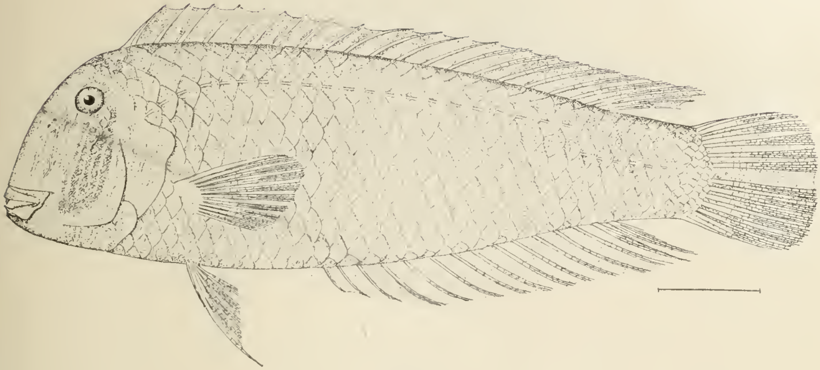


606

604. Chloriciithys grammaticus. (P. 1610.)
605. Novaculichthys ventralis. (P. 1615.)
606. Novaculichthys infirmus. (P. 1616.)



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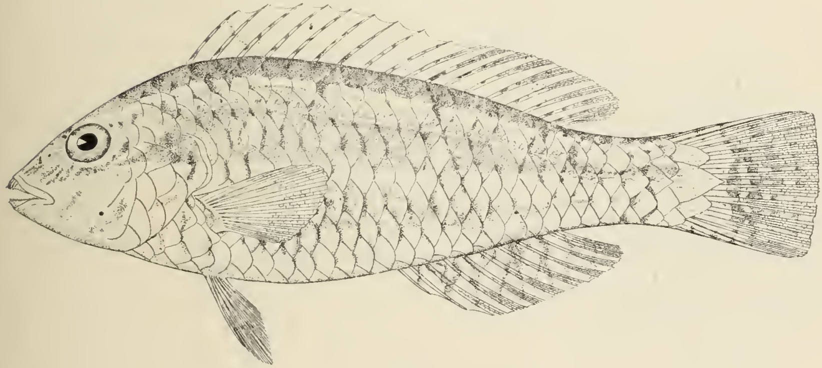
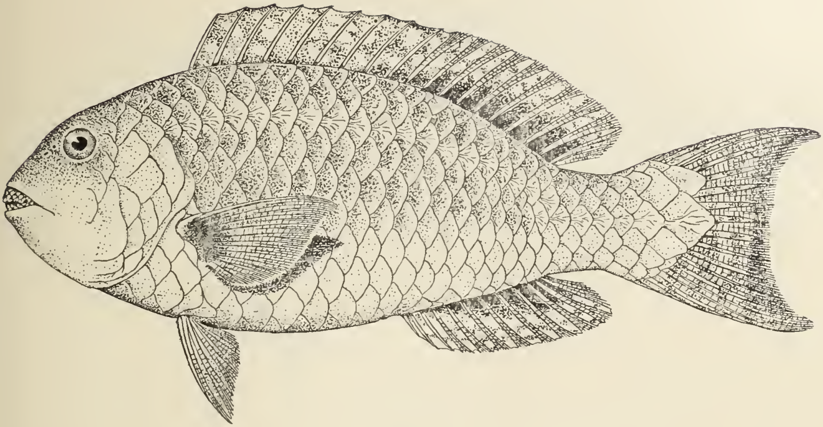


608

607. Xyrichthys psittacus. (P. 1618.)
608. Cryptotomus beryllinus. (P. 1625.)



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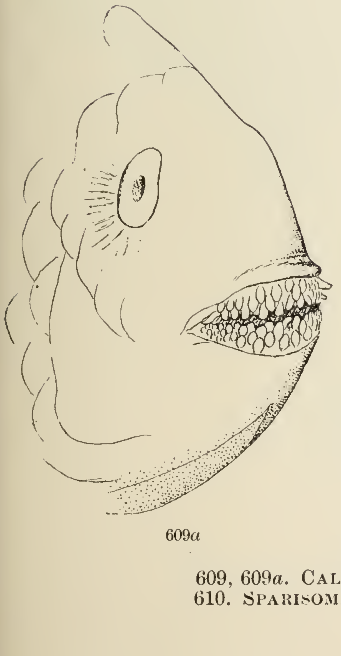
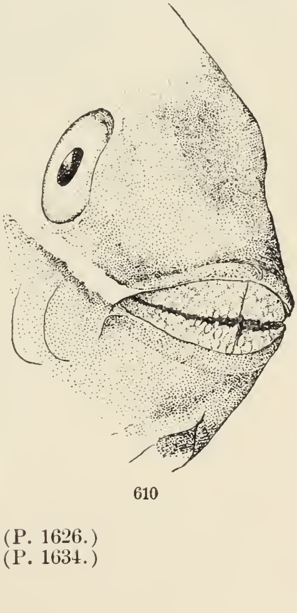
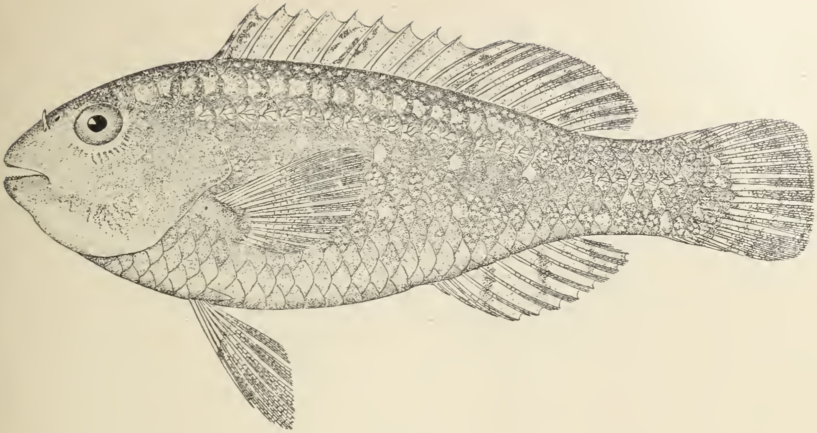


609*a*



610

609, 609*a*. Calotomus xenodon. (P. 1626.)
610. Sparisoma aurofrenatum. (P. 1634.)



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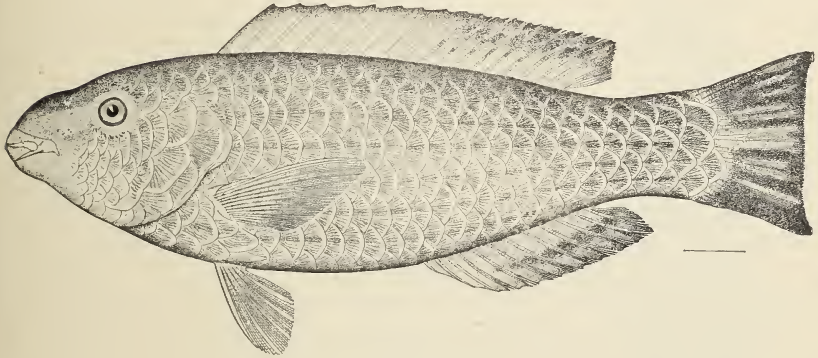
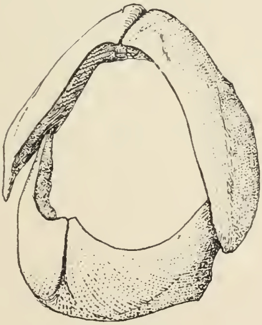
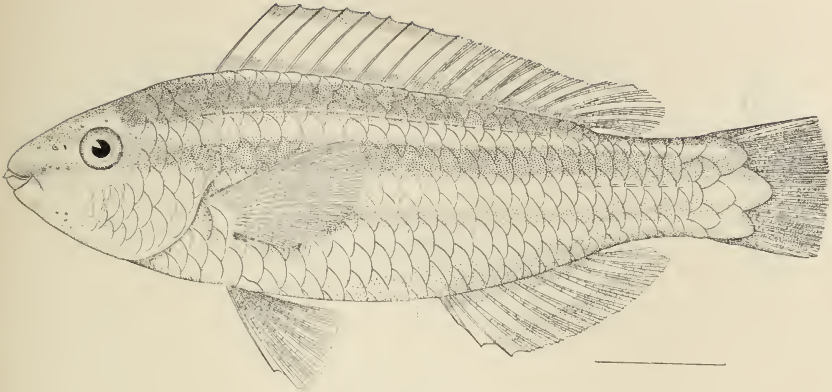


612



613

611. Sparisoma hoplomystax. (P. 1632.)
612. Scarus cuzamilæ. (P. 1648.)
613. Jaws of Scarus cæruleus. (P. 1652.)



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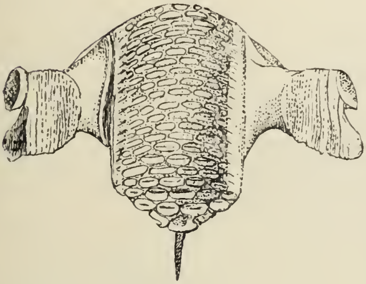

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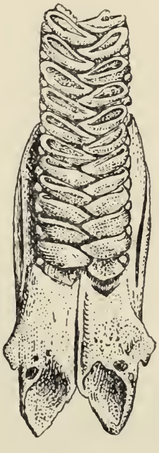
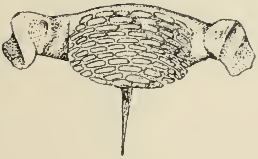


615*a*



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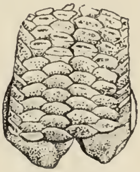
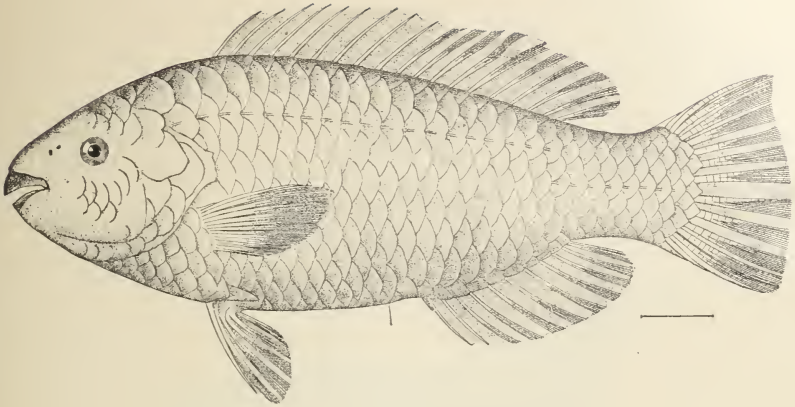


616*a*

614. Scarus emblematicus. (P. 1654.)
615, 615*a*. Lower and upper pharyngeal bones of Scarus strongylocephalus.
616, 616*a*. Lower and upper pharyngeal bones of Sparisoma cretense.



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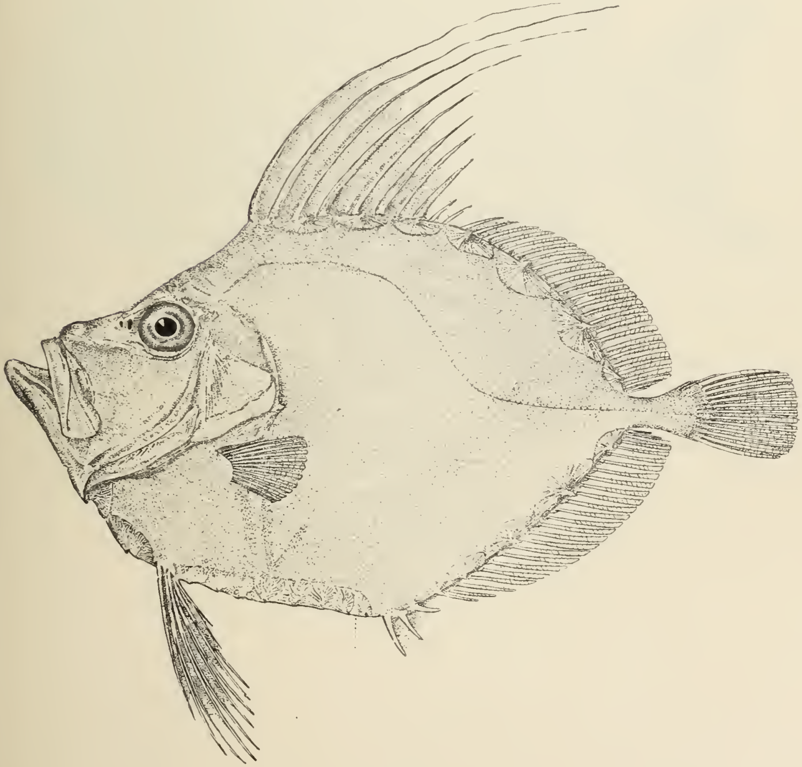
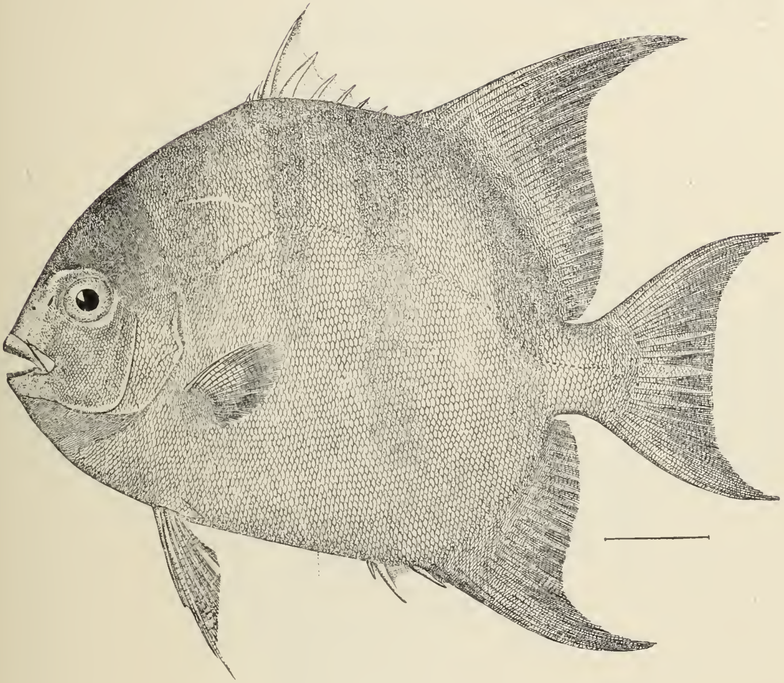


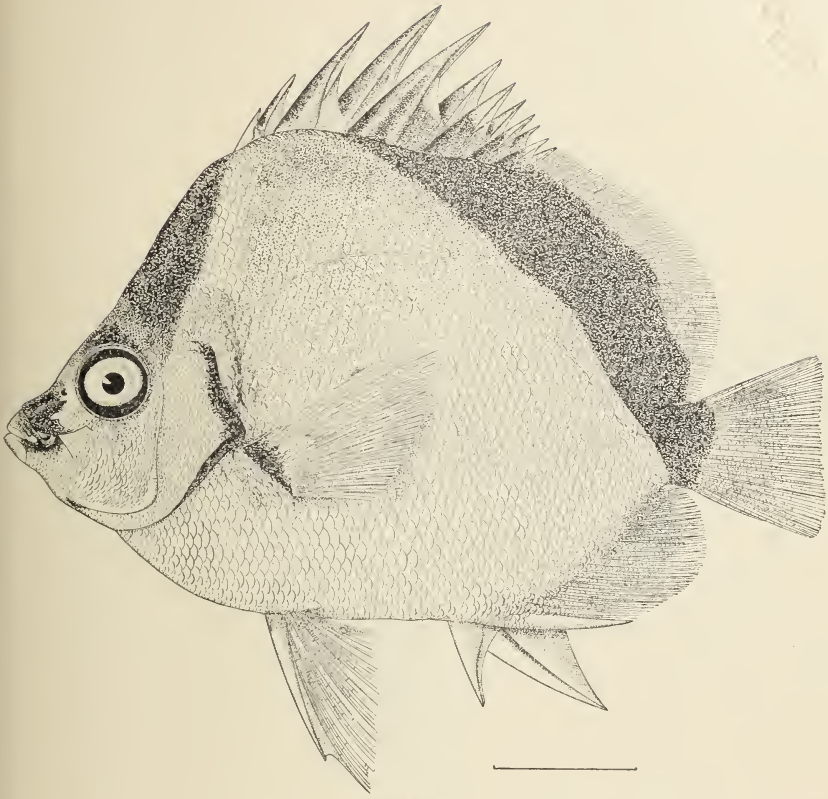
618

617. Pseudoscarus guacamaia. (P. 1657.)
618. Zenopsis ocellatus. (P. 1660.)



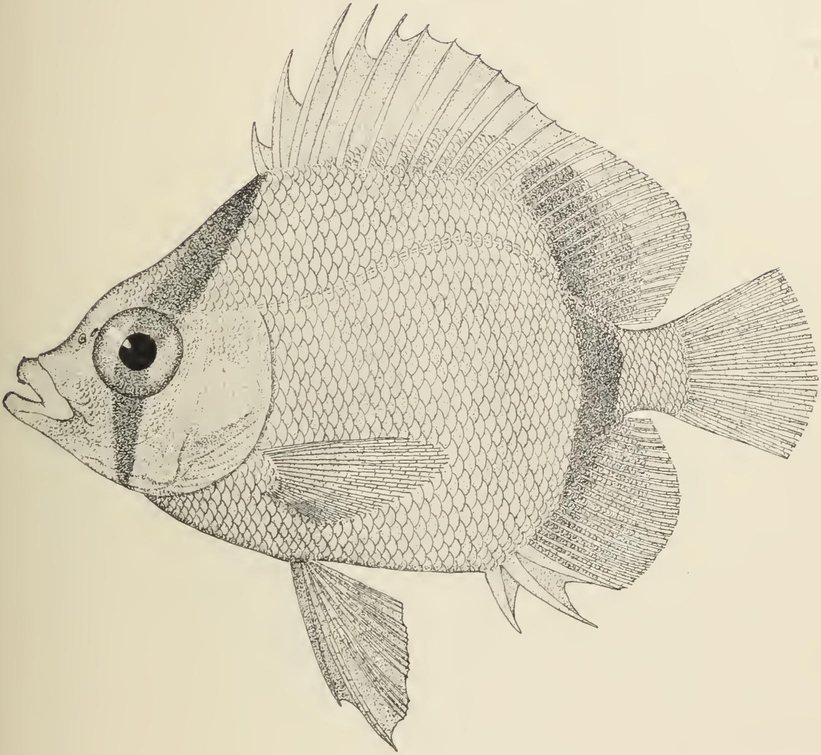
619

619. CHÆTODIPTERUS FABER. (P. 1668.)



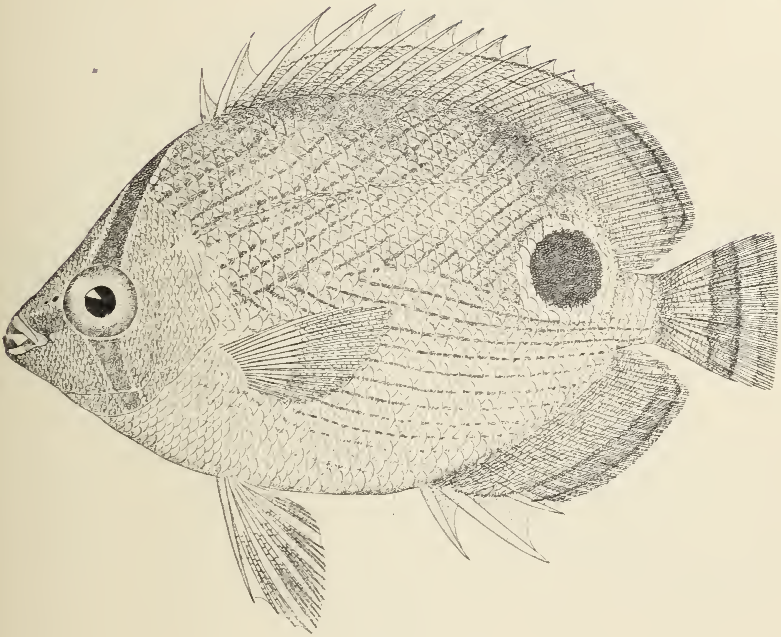
620

620. CHÆTODON NIGRIROSTRIS. (P. 1673.)

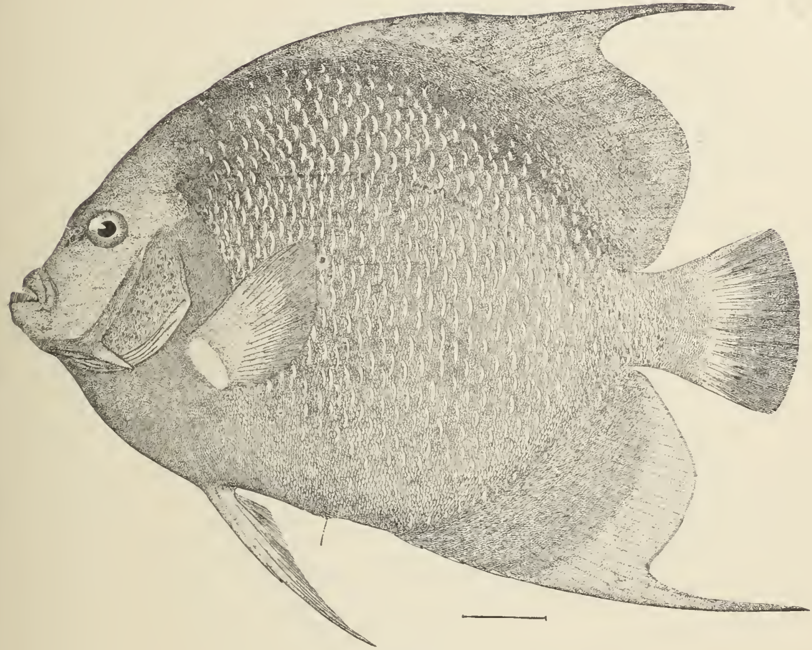


621

621. Chætodon ocellatus. (P. 1674.)

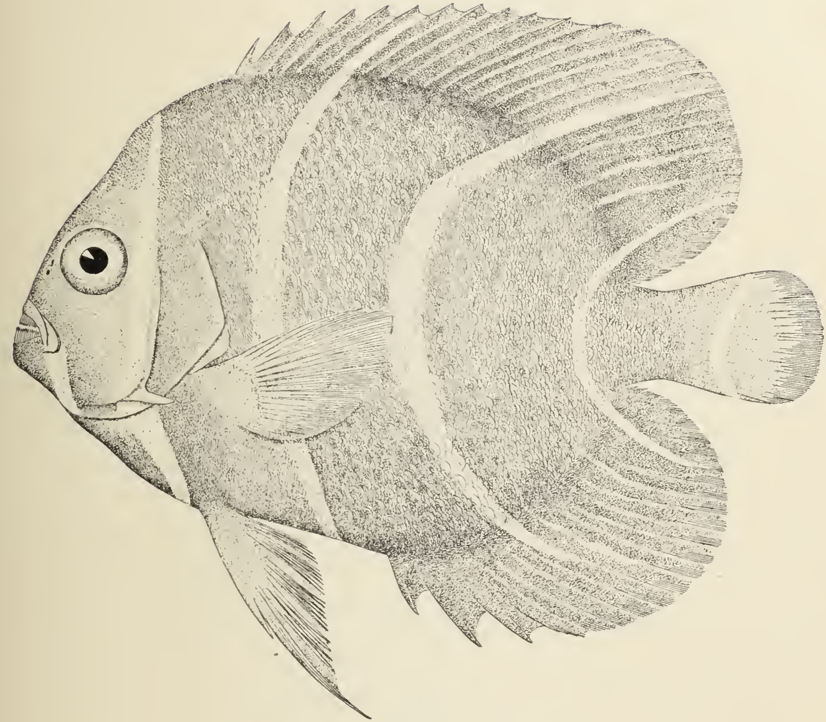


622. Chætodon capistratus. (P. 1677.)



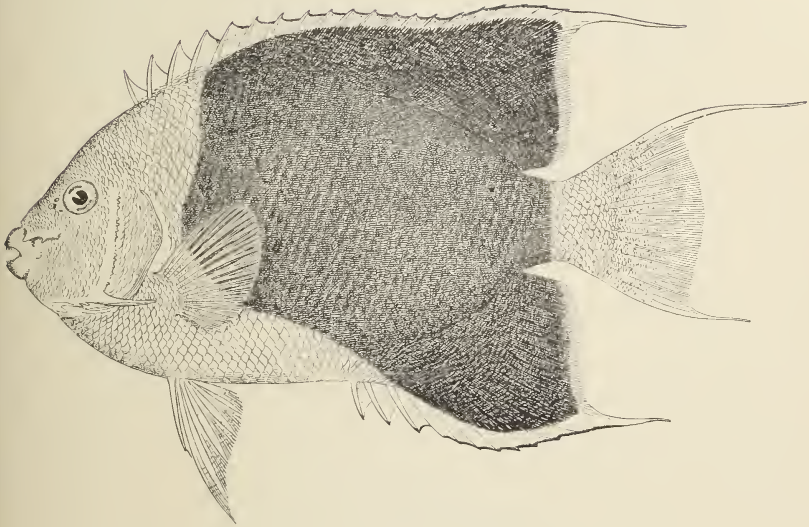
623

623. Pomacanthus arcuatus. (P. 1679.)



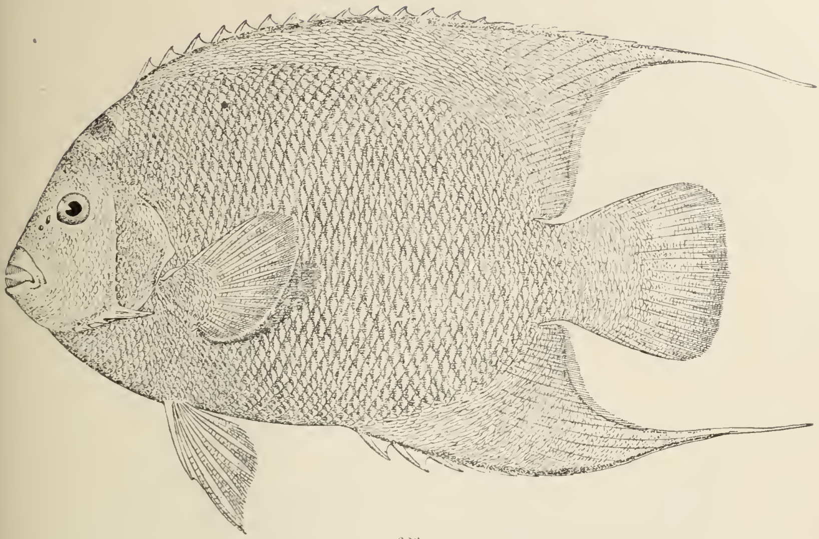
624

624. Pomacanthus zonipectus; young. (P. 1681.)



625

625. Holacanthus tricolor. (P. 1684.)



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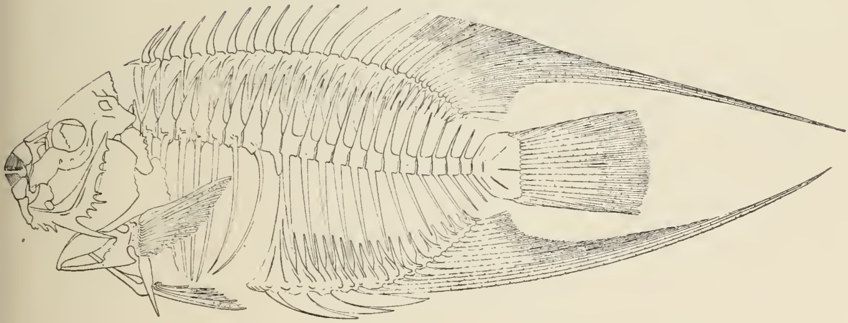
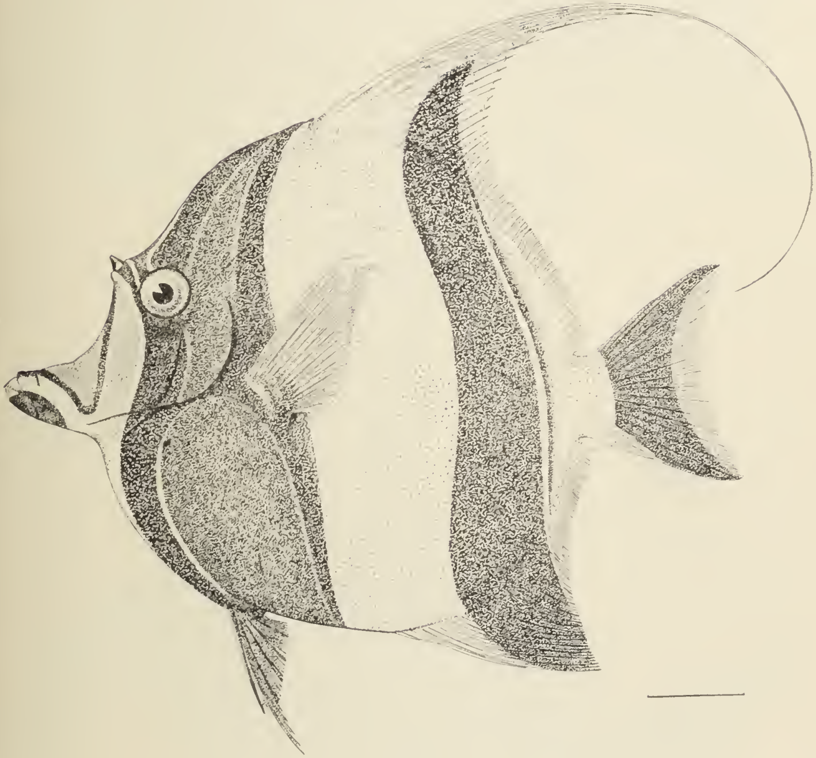


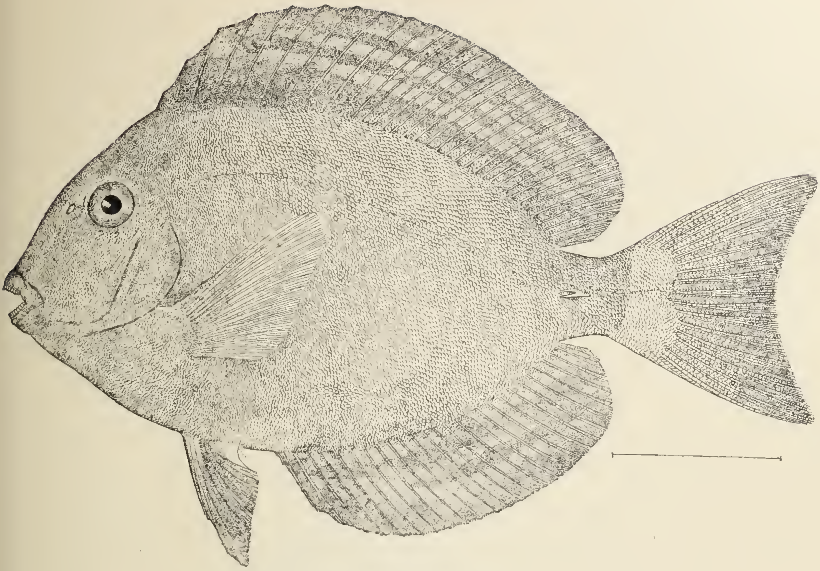
626*a*

626, 626*a*. ANGELICHTHYS CILIARIS. (P. 1684.)

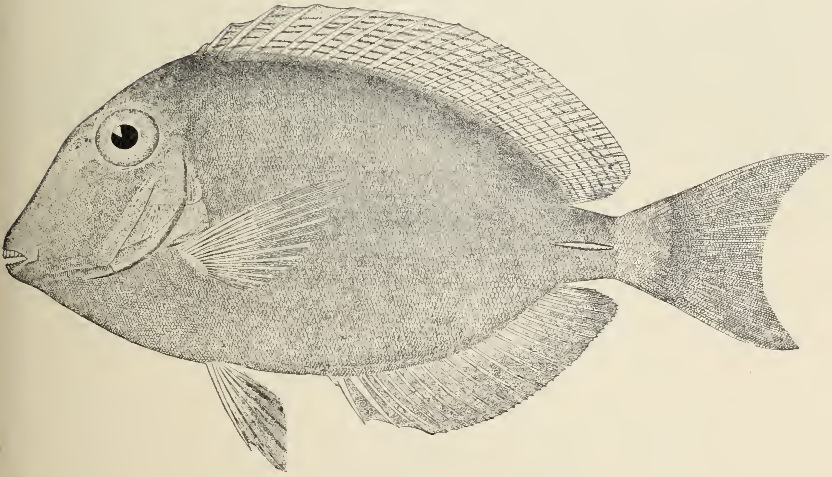


627

627. Zanclus cornutus. (P. 1687.)

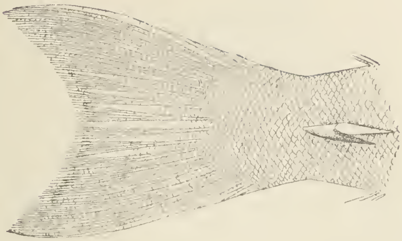


628



629

628. Teuthis crestonis. (P. 1692.)
629. Teuthis bahianus. (P. 1693.)



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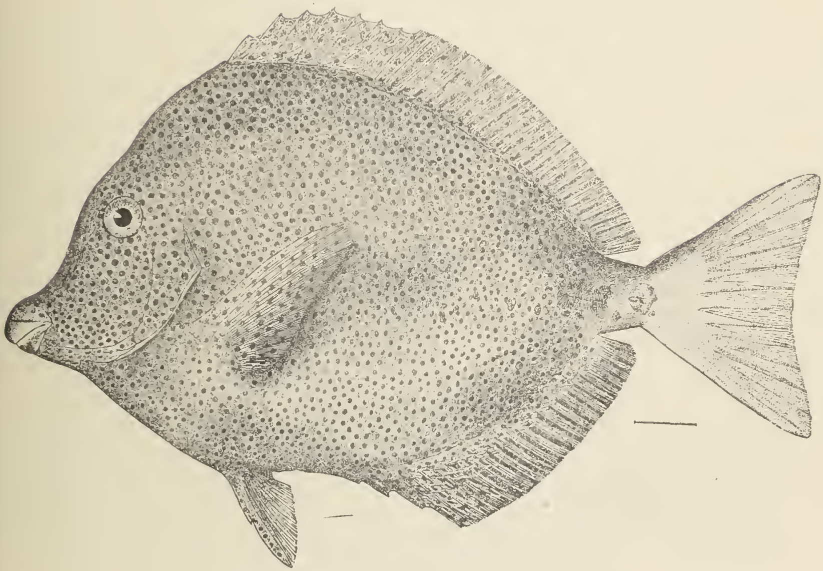
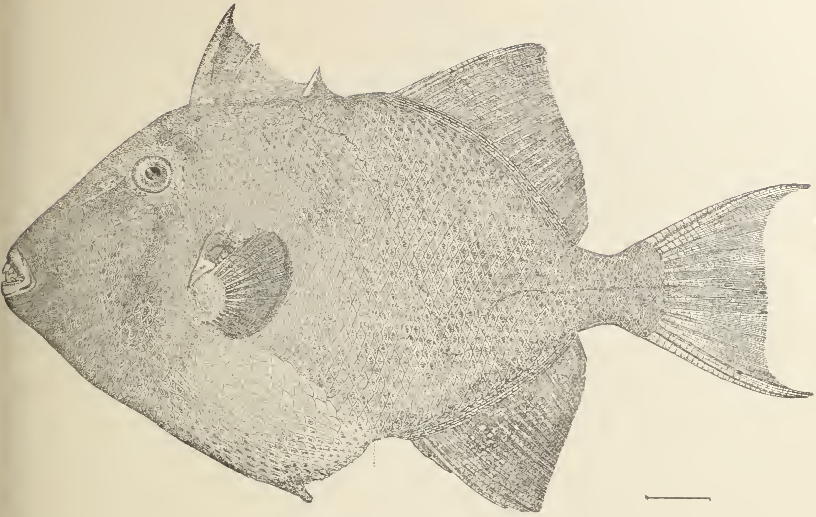


631

630. Tail of Teuthis bahianus. (P. 1693.)
631. Xesurus punctatus. (P. 1694.)



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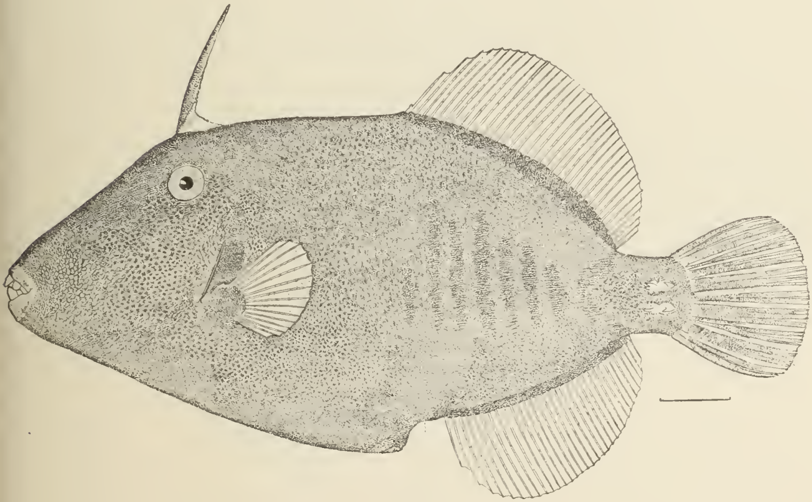
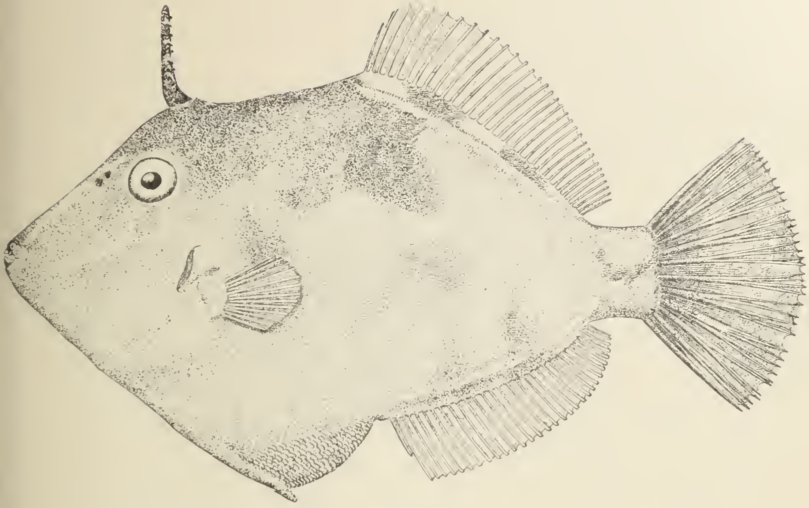


633

632. Balistes carolinensis. (P. 1701.)
633. Cantherines carolæ. (P. 1713.)



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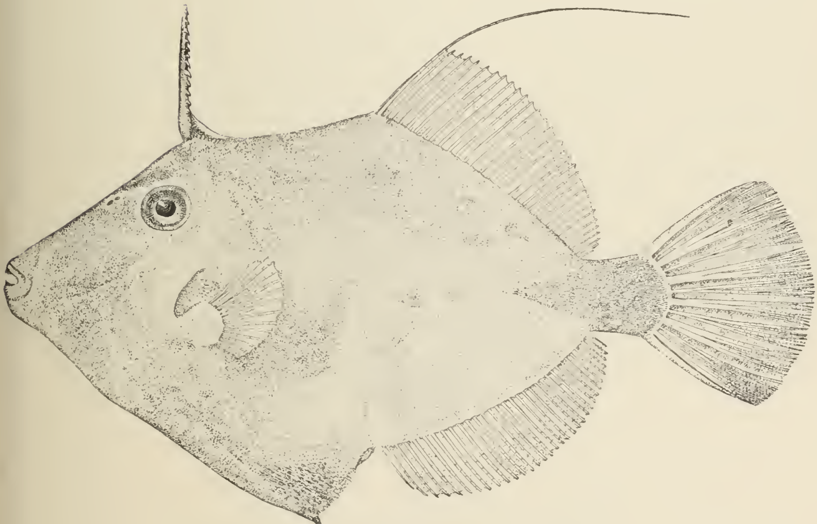
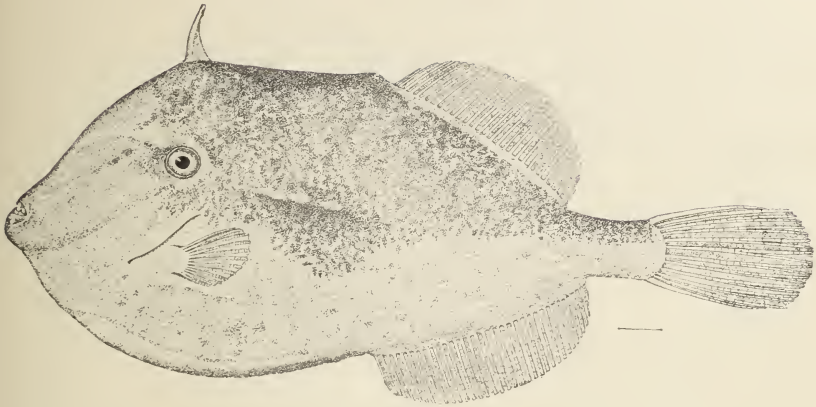


635

634. Monocanthus ciliatus. (P. 1714.)
635. Monocanthus hispidus. (P. 1715.)



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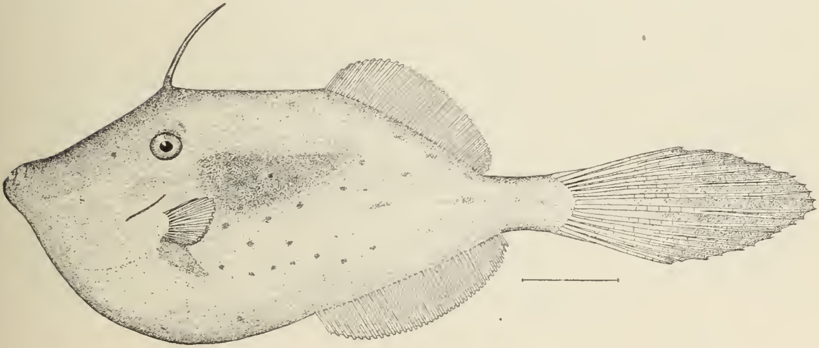
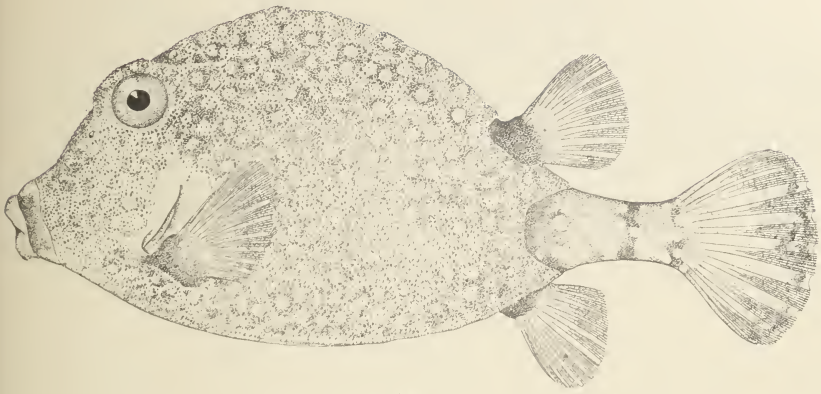


637

636. Alutera schœpfii. (P. 1718.)
637. Alutera scripta. (P. 1719.)



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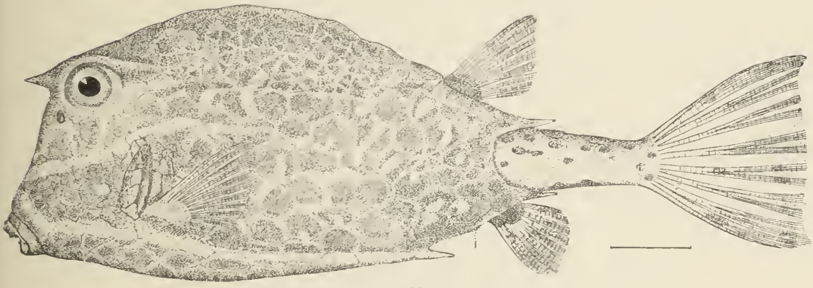
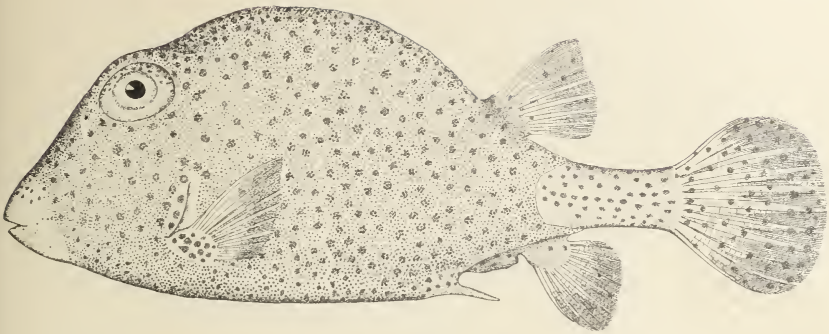


639

638. Lactophrys triqueter. (P. 1722.)
639. Lactophrys tricornis. (P. 1724.)



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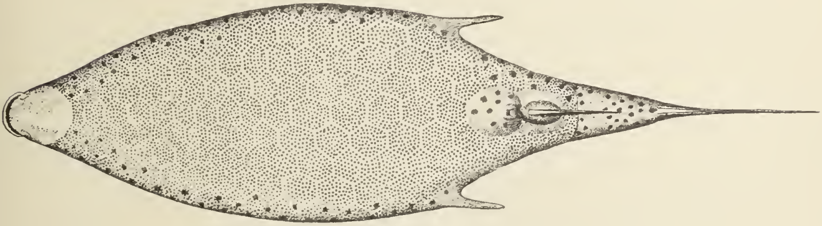
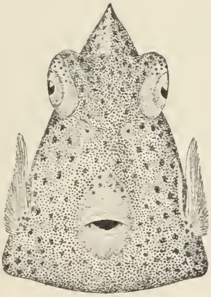
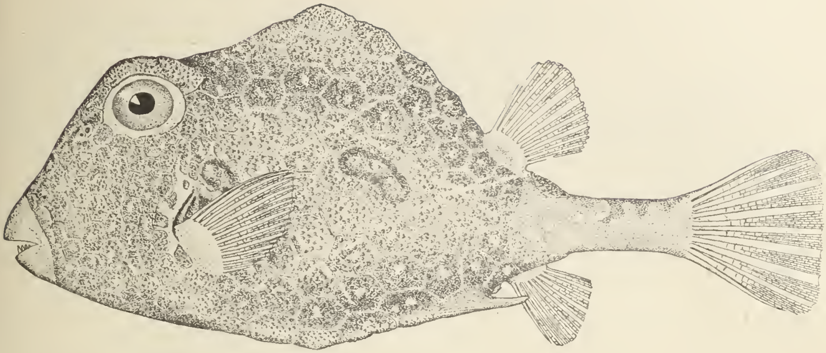


640*a*



640*b*

640, 640*a*, 640*b*. LACTOPHRYS BICAUDALIS. (P. 1723.)



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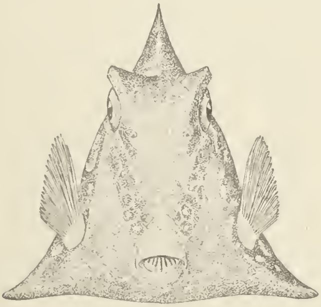
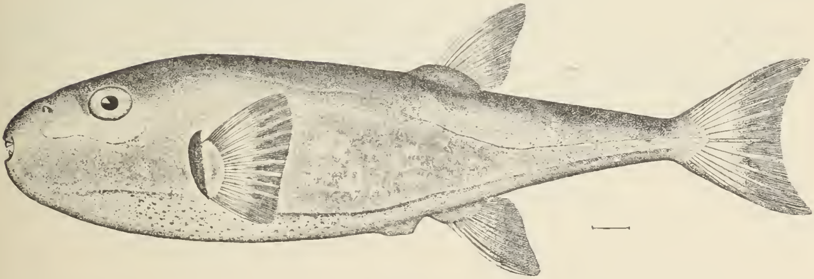
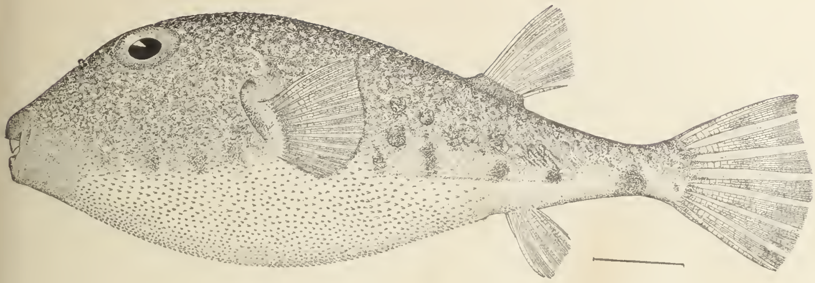


641*a*



642

641, 641*a*. Lactophrys trigonus. (P. 1723.)
642. Lagocephalus lævigatus. (P. 1728.)



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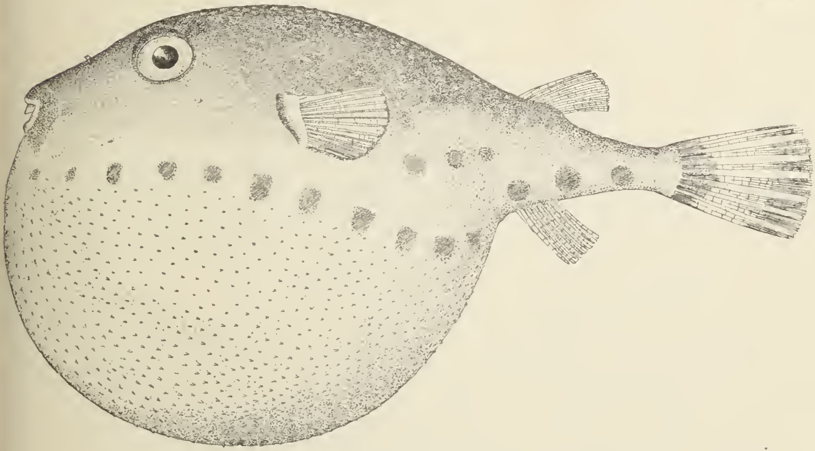

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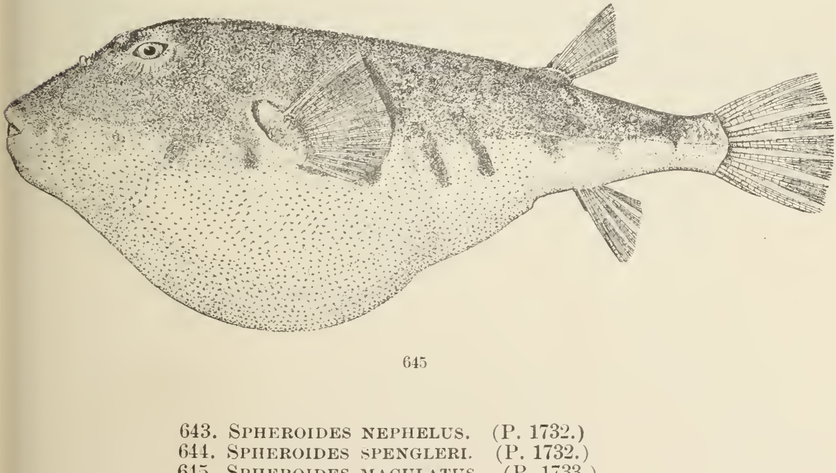
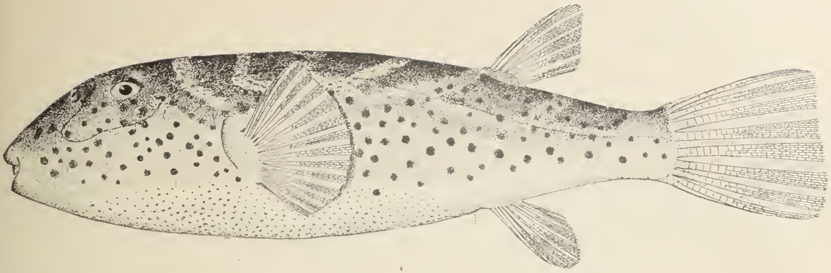
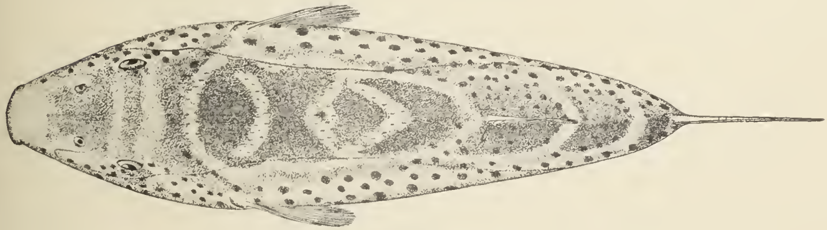


645

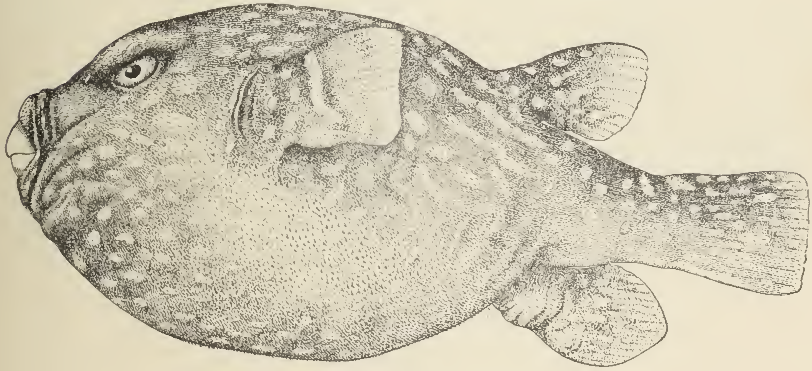
643. SPHEROIDES NEPHELUS. (P. 1732.)
644. SPHEROIDES SPENGLERI. (P. 1732.)
645. SPHEROIDES MACULATUS. (P. 1733.)



646

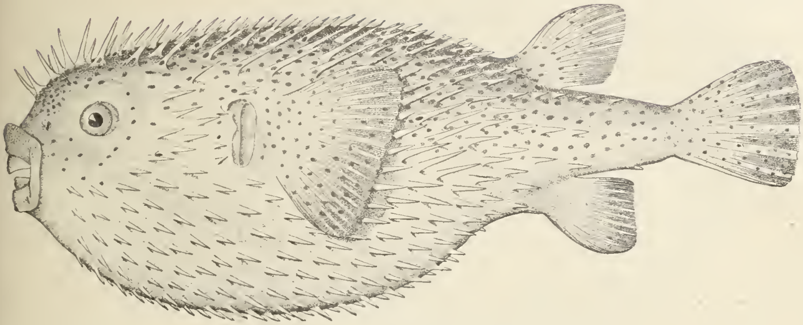


646*a*



647

646, 646*a*. Spheroides testudineus. (P. 1734.)
647. Ovoides setosus. (P. 1739.)



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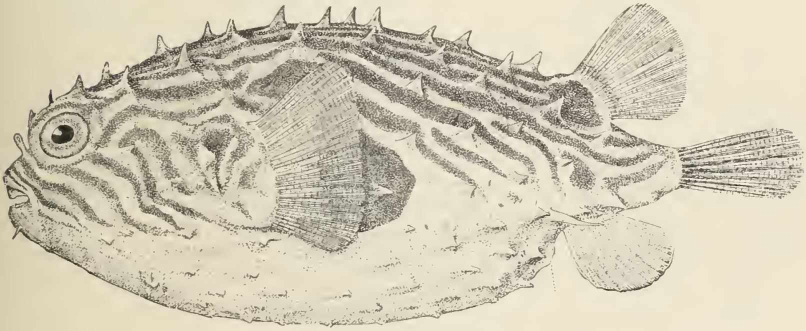
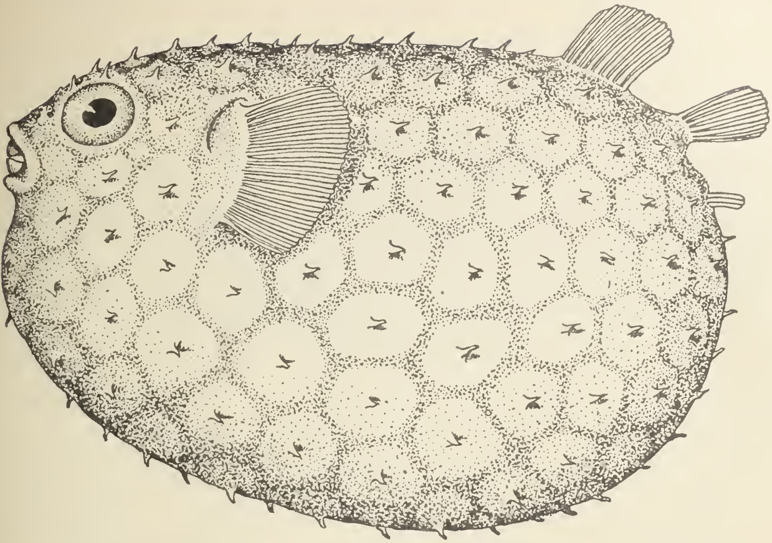


649

648. Diodon hystrix. (P. 1745.)
649. Chilomycterus schœpfi. (P. 1748.)



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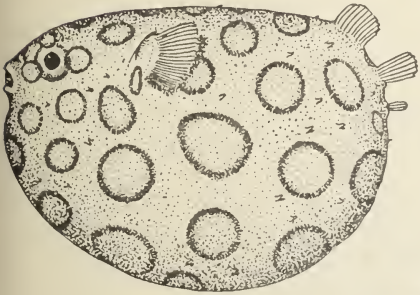
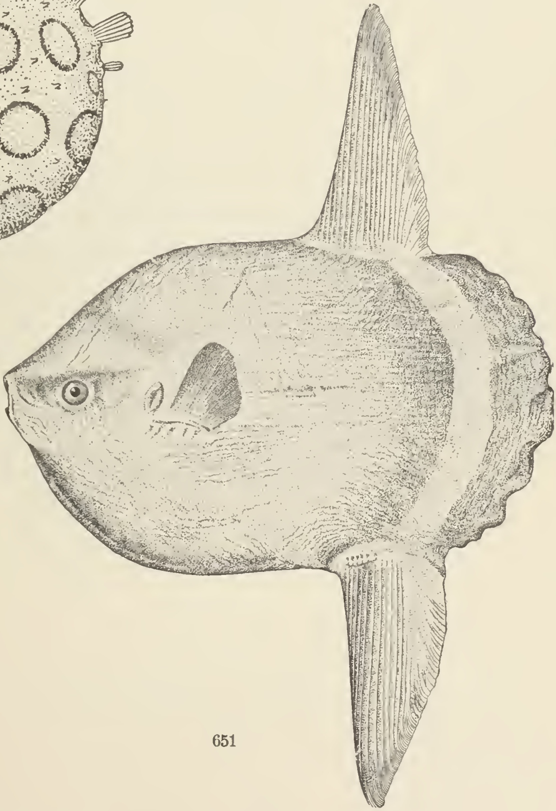
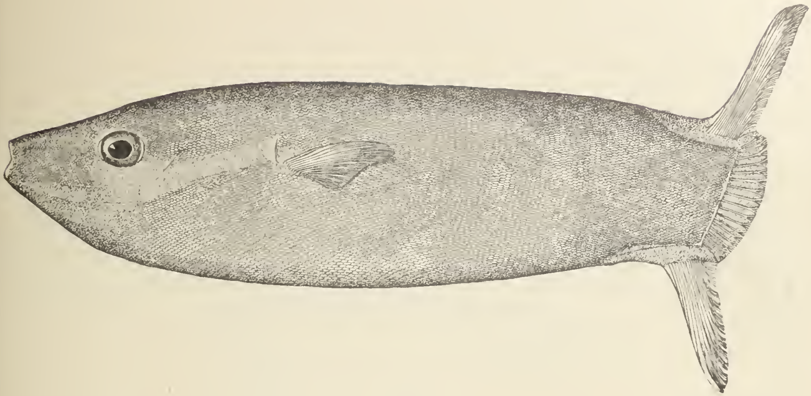


650*a*



651

650. Lyosphæra globosa. (P. 1751.)
650*a*. Lyosphæra globosa; young. (P. 1751.)
651. Mola mola. (P. 1753.)



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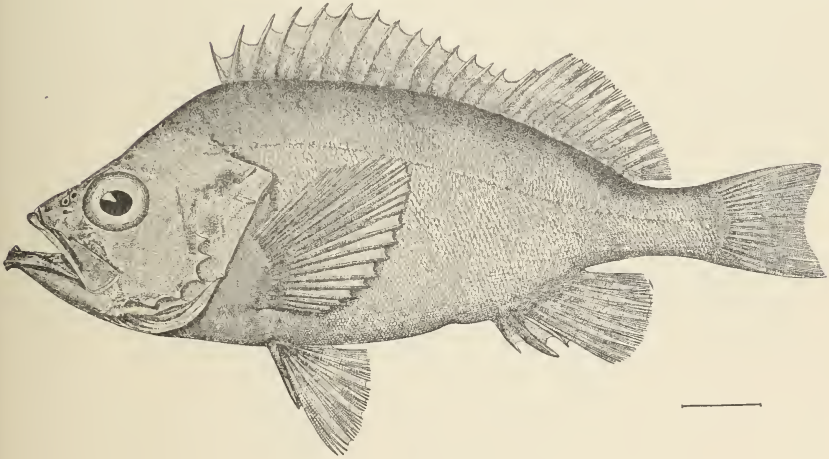
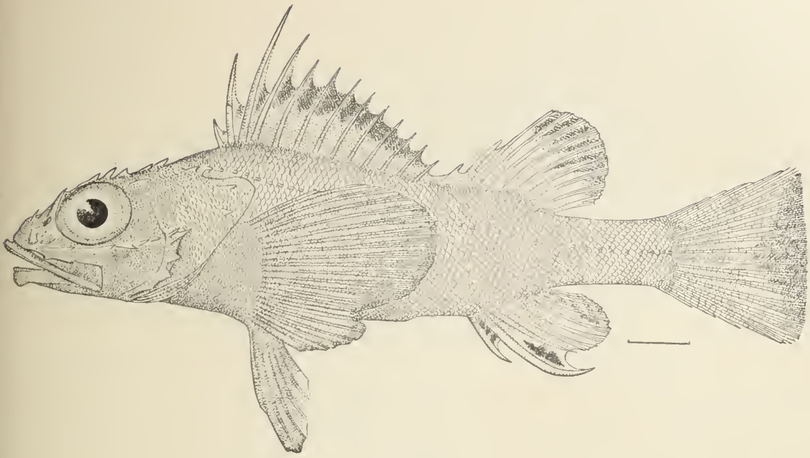


653

652. Ranzania truncata. (P. 1755.)
653. Sebastes marinus. (P. 1760.)



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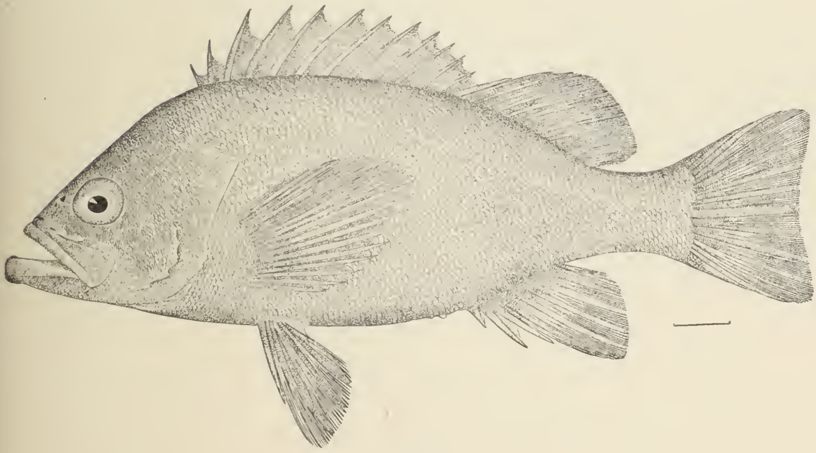
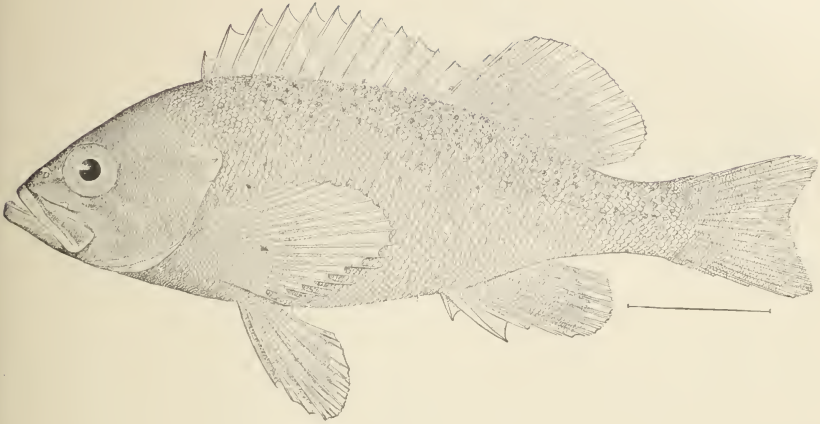


655

654. SEBASTOLOBUS ALTIVELIS. (P. 1763.)
655. SEBASTODES MELANOPS. (P. 1782.)



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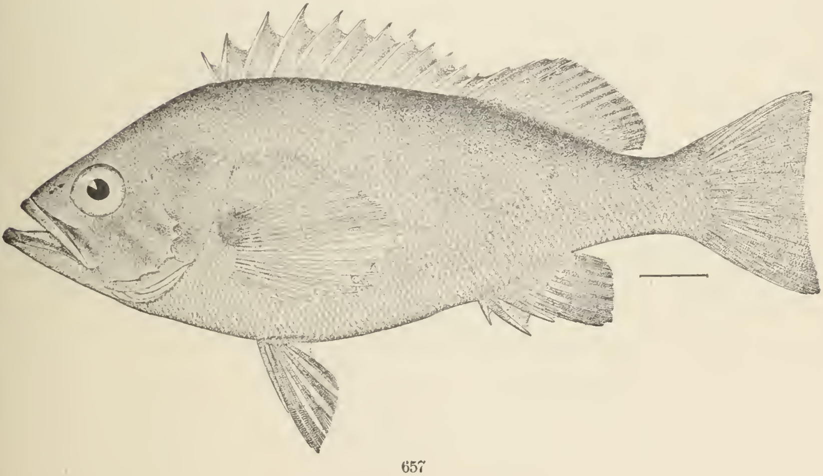
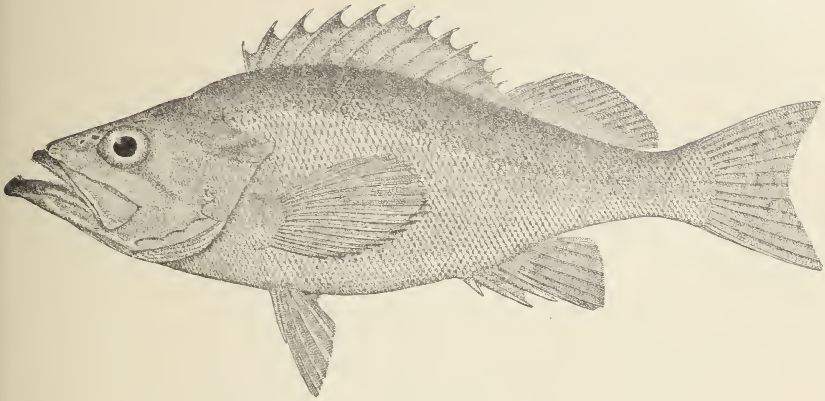


657

656. Sebastodes ciliatus. (P. 1783.)
657. Sebastodes mystinus. (P. 1784.)



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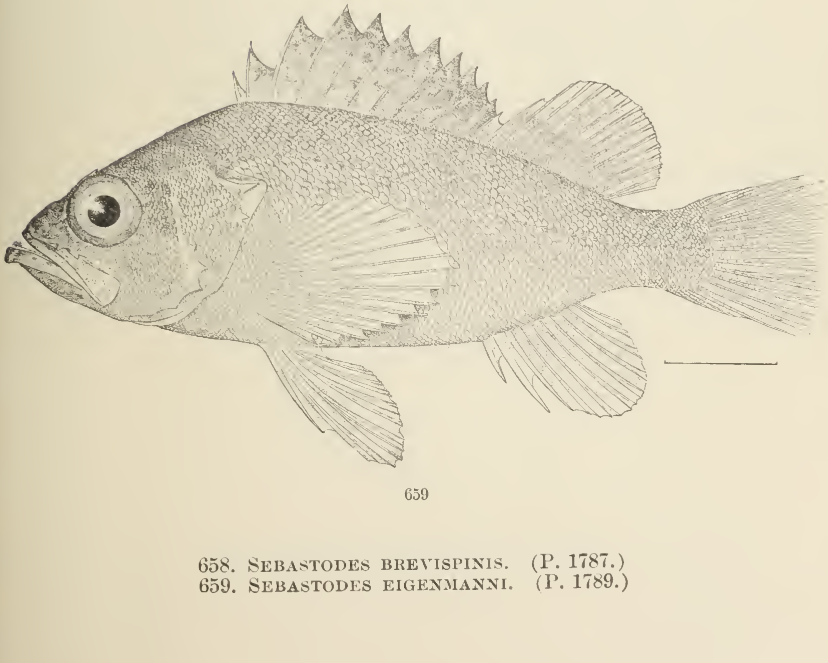
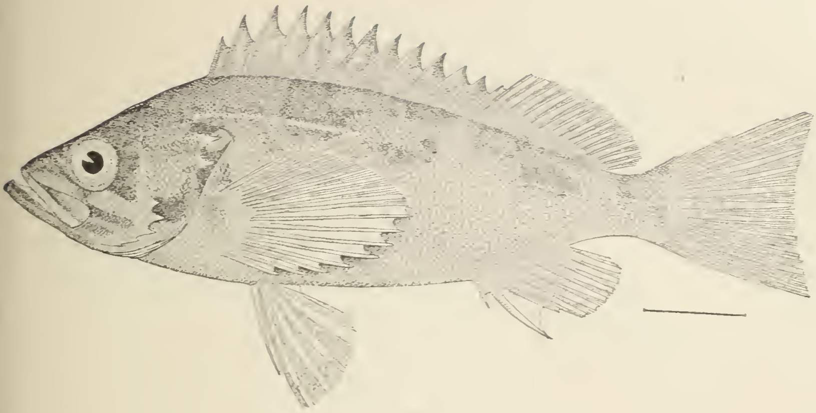


659

658. Sebastodes brevispinis. (P. 1787.)
659. Sebastodes eigenmanni. (P. 1789.)



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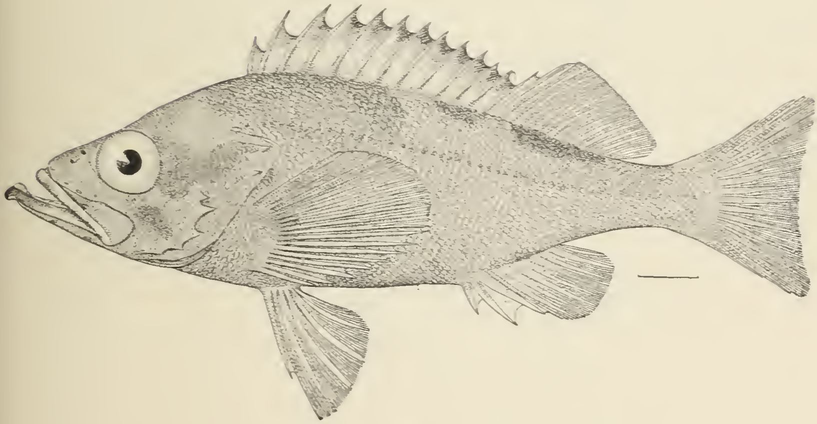
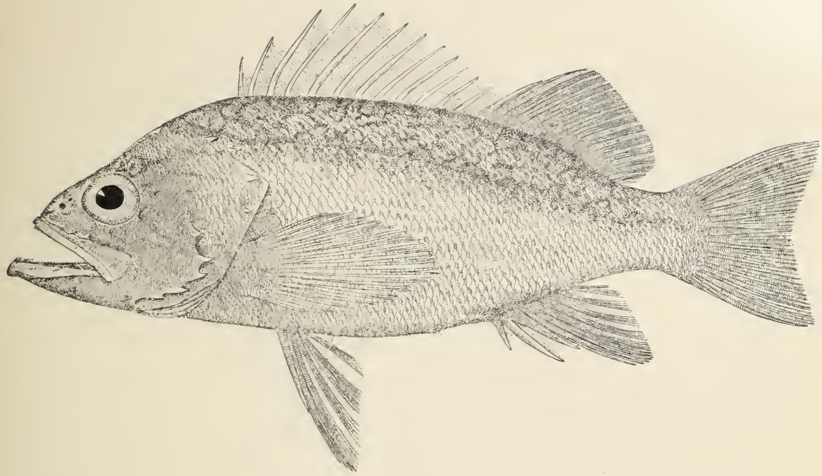


661

660. SEBASTODES HOPKINSI. (P. 1789.)
661. SEBASTODES ALUTUS. (P. 1790.)



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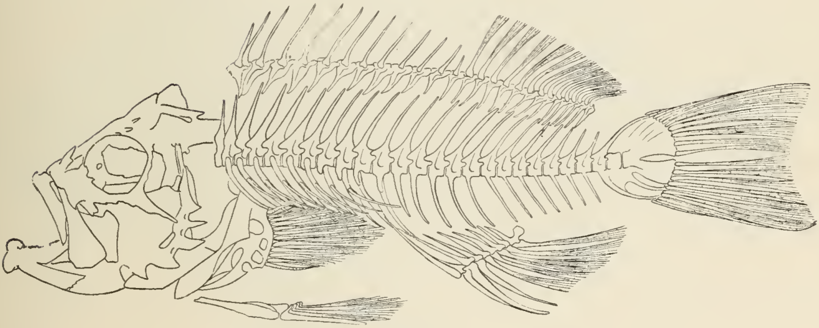
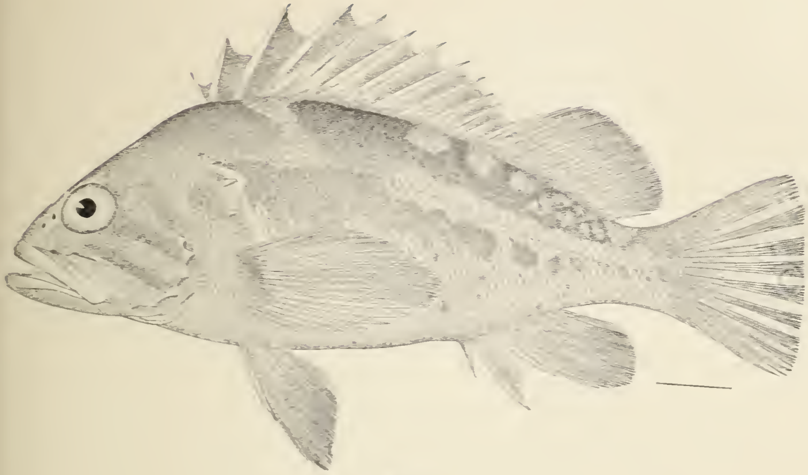


663

662. SEBASTODES PINNIGER. (P. 1793.)
663. SEBASTODES MINIATUS. (P. 1794.)



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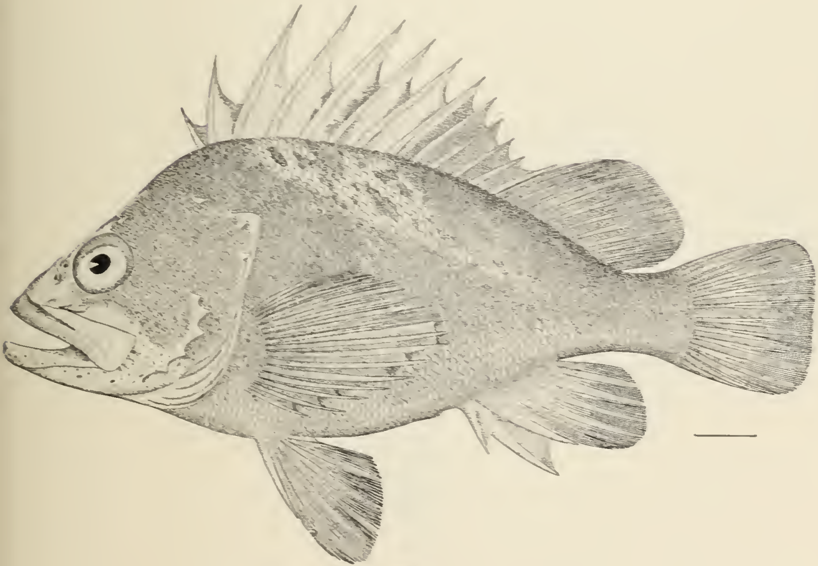
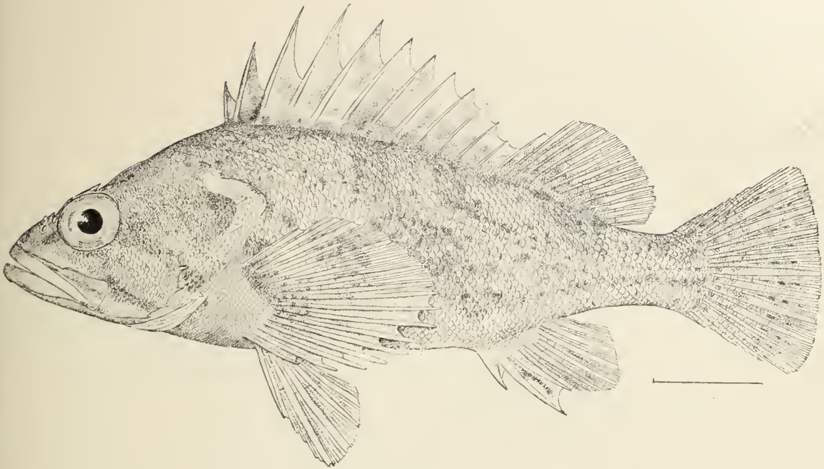


665

664. Sebastodes caurinus. (P. 1820.)
665. Sebastodes maliger. (P. 1822.)



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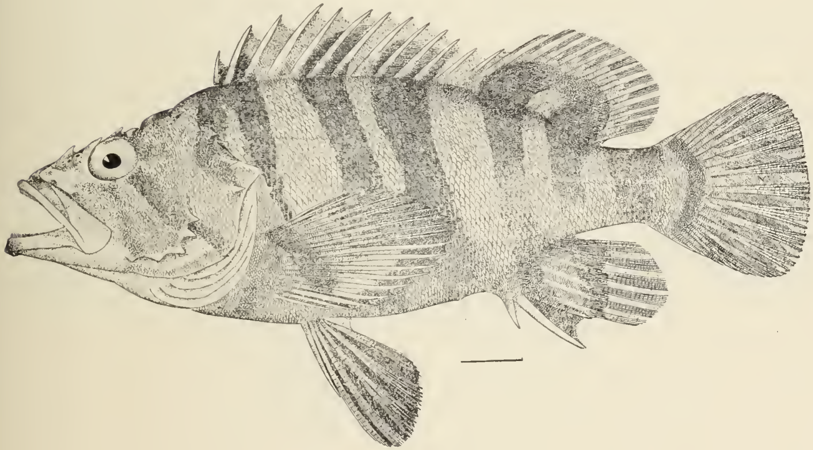
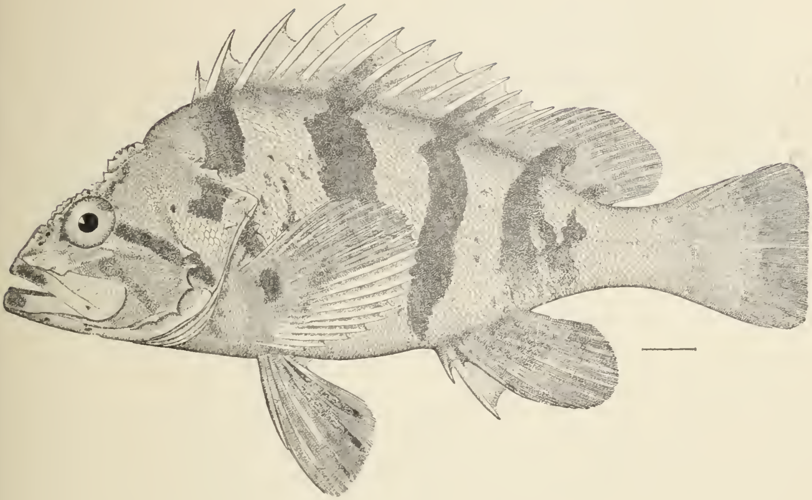


667

666. Sebastodes gilberti. (P. 1823.)
667. Sebastodes serriceps. (P. 1827.)



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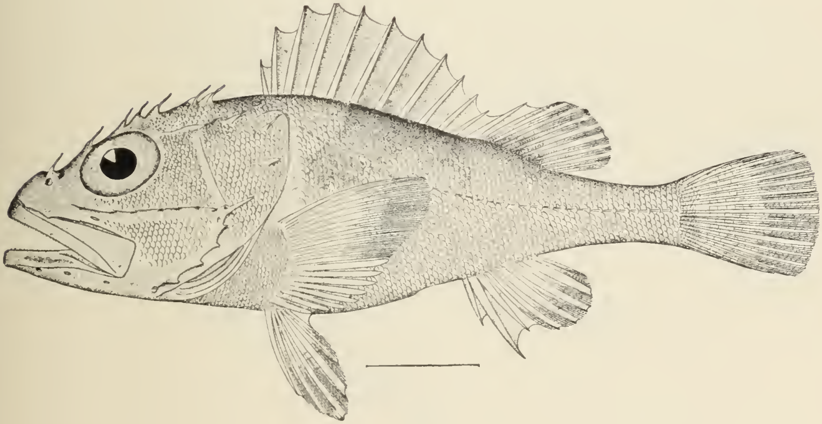
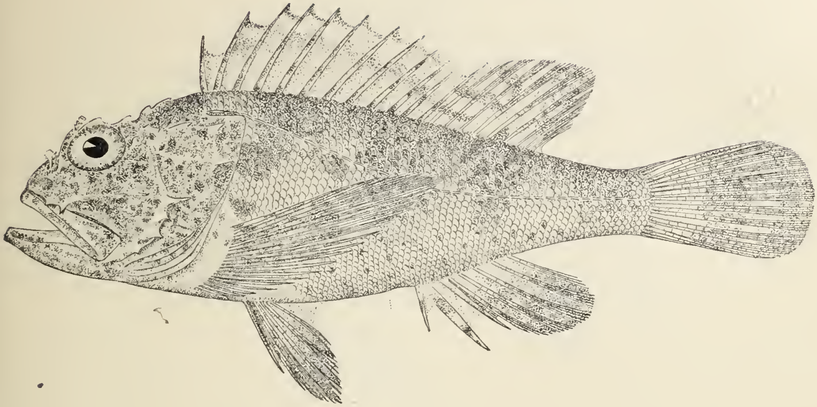


669

668. SEBASTODES NIGROCINCTUS. (P. 1827.)
669. SCORPÆNA CRISTULATA. (P. 1841.)



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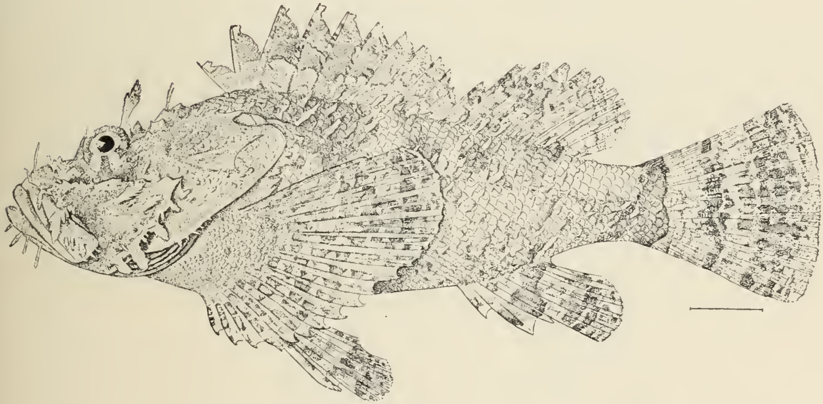
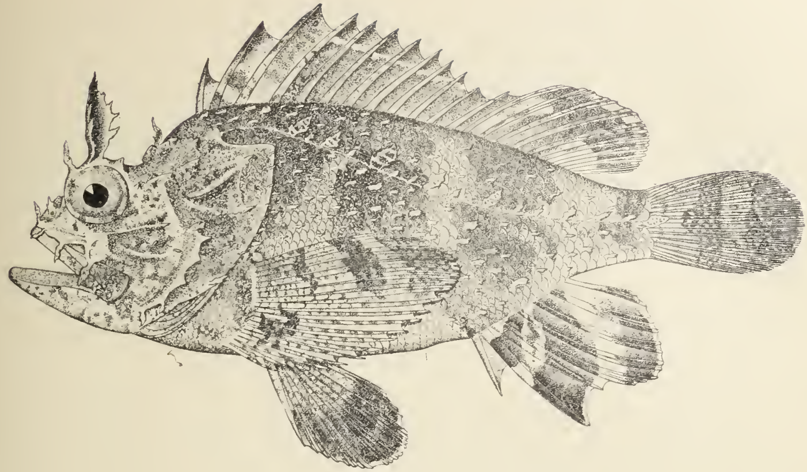


671

670. Scorpæna brasiliensis. (P. 1842.)
671. Scorpæna mystes. (P. 1849.)



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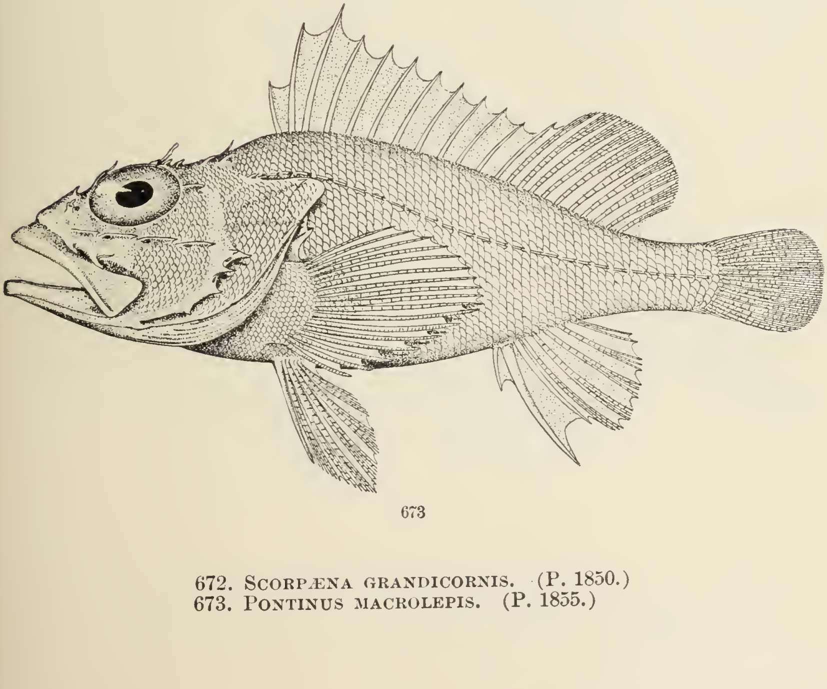
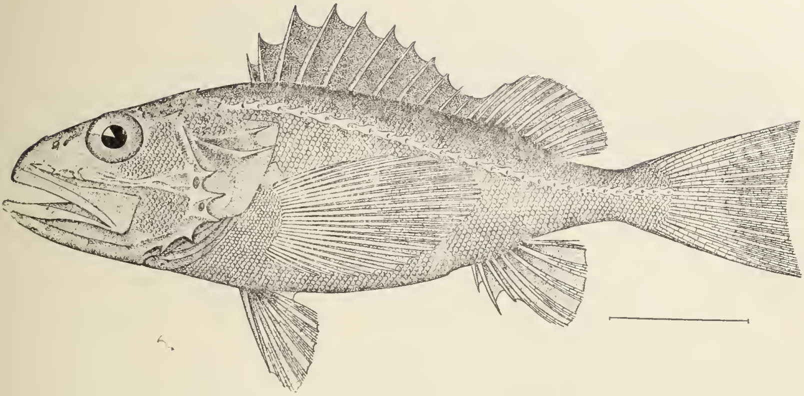


673

672. Scorpæna grandicornis. (P. 1850.)
673. Pontinus macrolepis. (P. 1855.)



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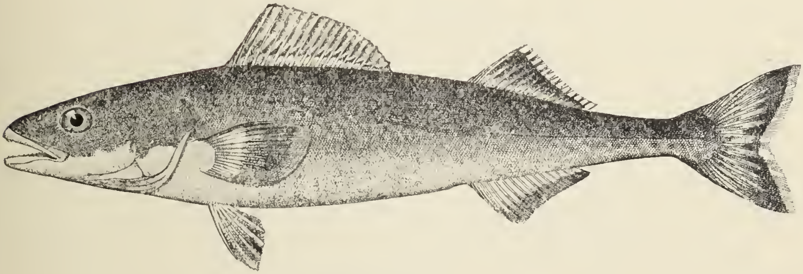

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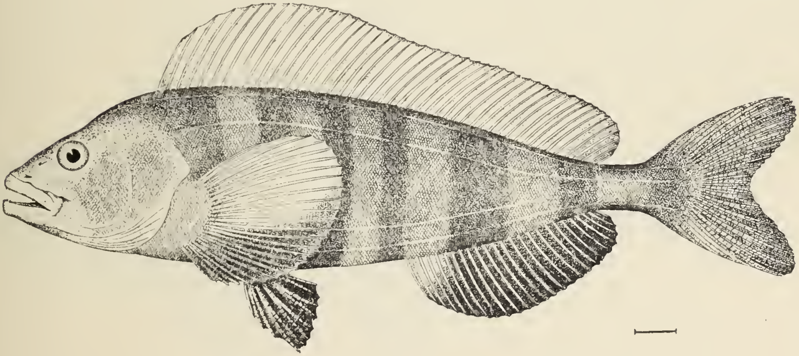
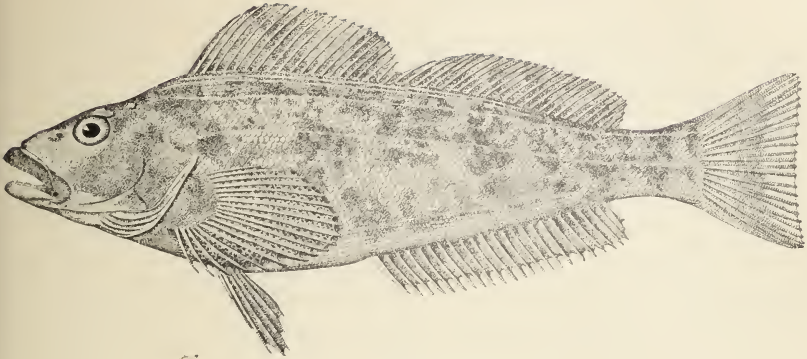


676

674. SETARCHES PARMATUS. (P. 1860.)
675. ANOPLOPOMA FIMBRIA. (P. 1862.)
676. PLEUROGRAMMUS MONOPTERYGIUS. (P. 1864.)



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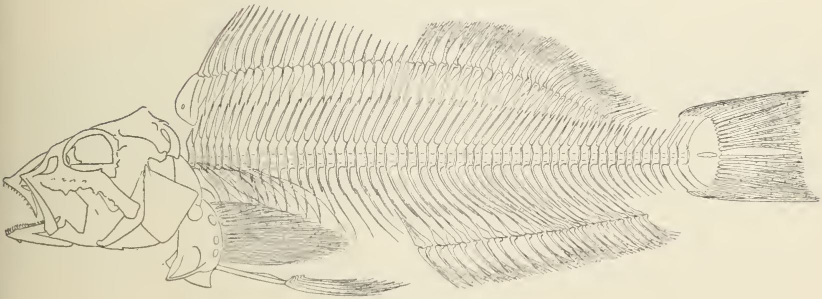
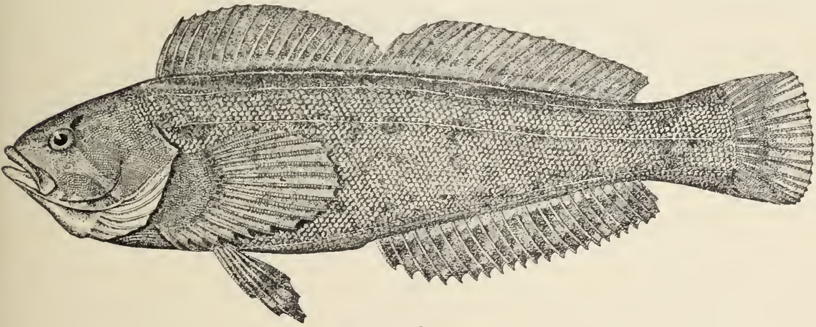
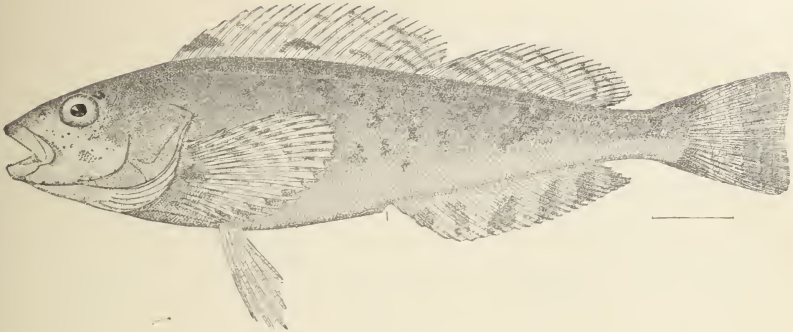


677*a*



678

677, 677*a*. HEXAGRAMMOS DECAGRAMMUS. (P. 1867.)
678. HEXAGRAMMOS OCTOGRAMMUS. (P. 1869.)



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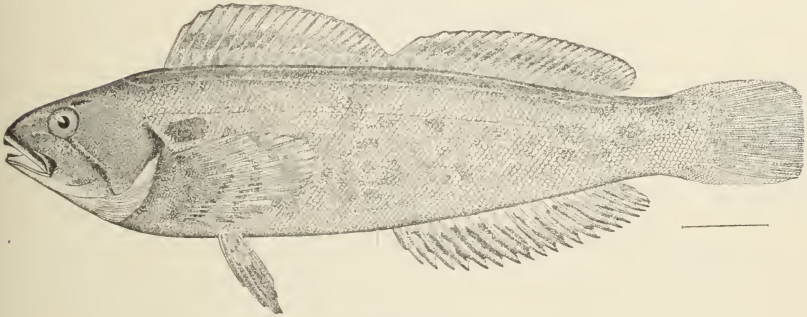

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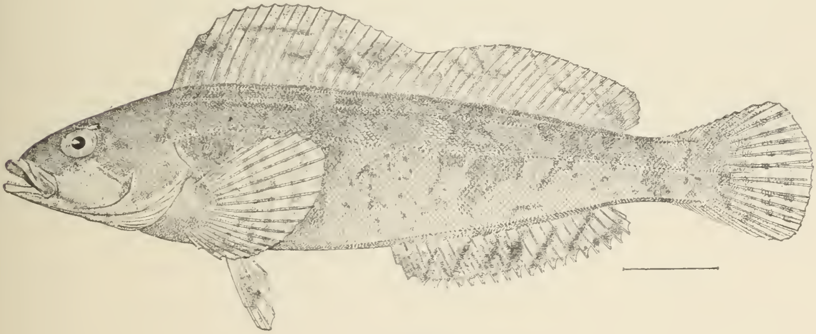
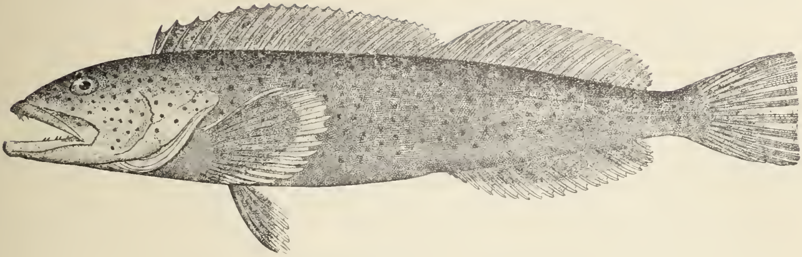


681

679. Hexagrammos stelleri. (P. 1871.)
680. Hexagrammos superciliosus. (P. 1872.)
681. Hexagrammos otakii. (P. 1867.)



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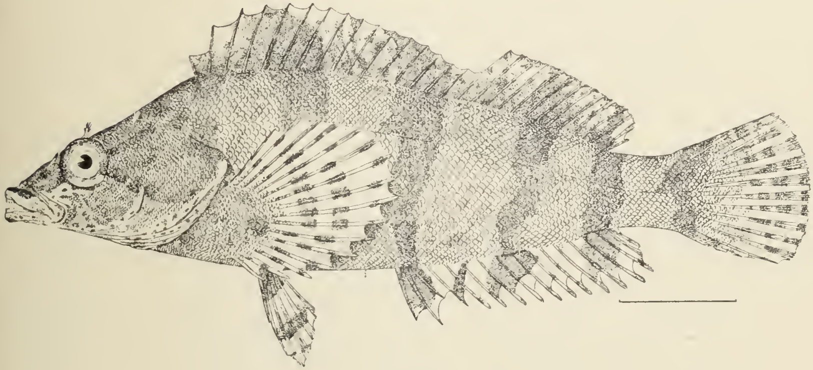

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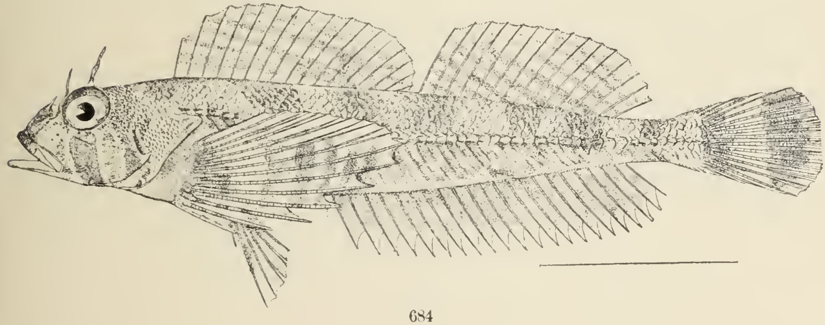
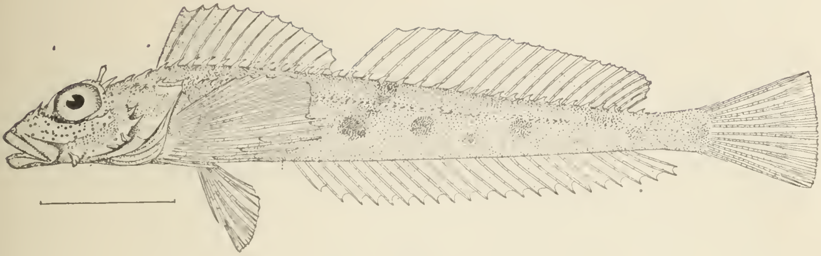


684

682. Ophidion elongatus. (P. 1875.)
683. Oxylebius pictus. (P. 1878)
684. Jordania zonope. (P. 1884.)



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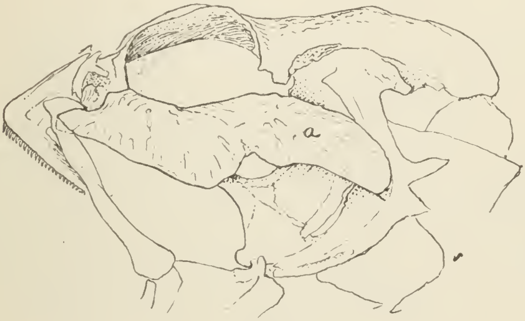

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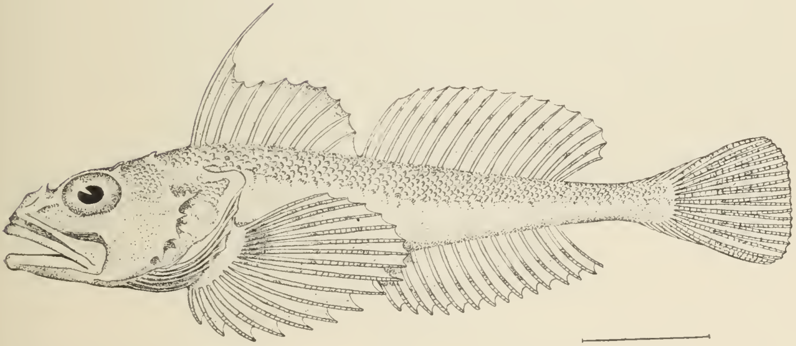
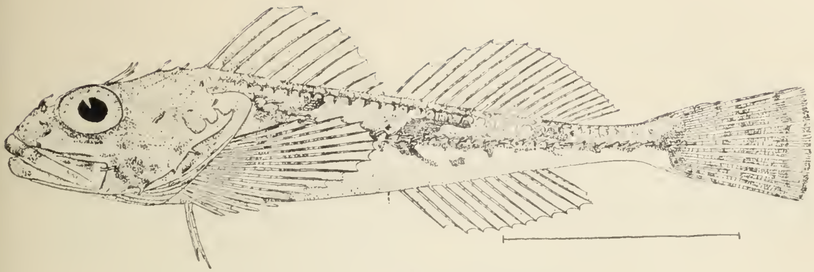


687

685. Alcidea thoburni. (P. 1887.)
686. Skull of Scorpænichthys marmoratus. (P. 1889.)
687. Chitonotus pugetensis. (P. 1890.)



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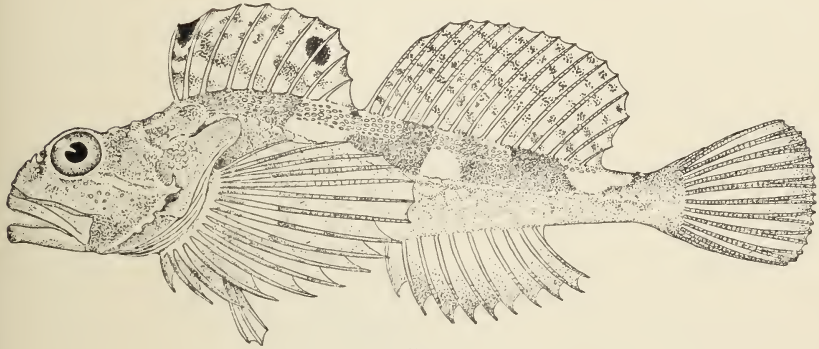

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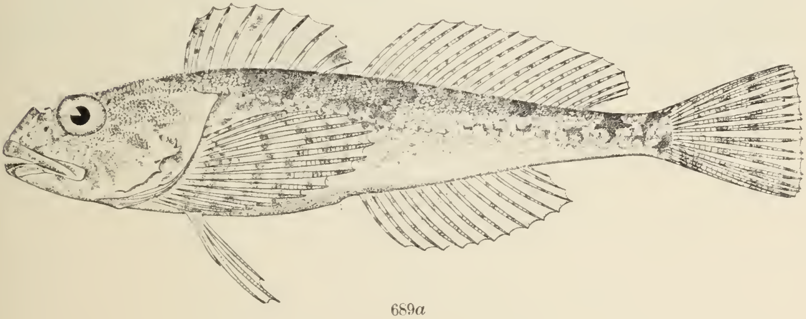
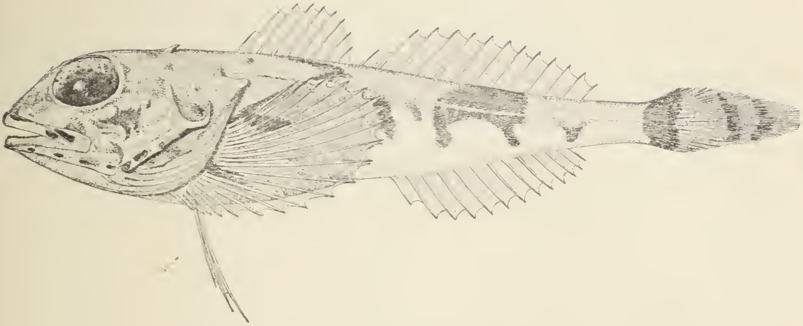


689*a*

688. Icelinus borealis. (P. 1896.)
689. Astrolytes notospilotus. (P. 1899.)
689*a*. Astrolytes notospilotus; young? (P. 1899.)



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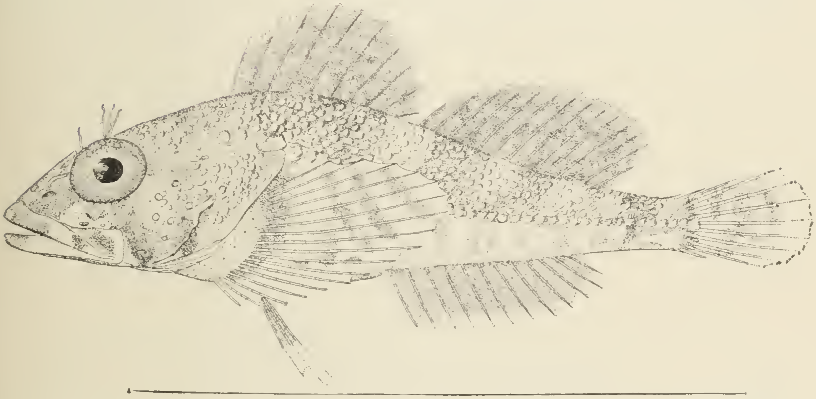
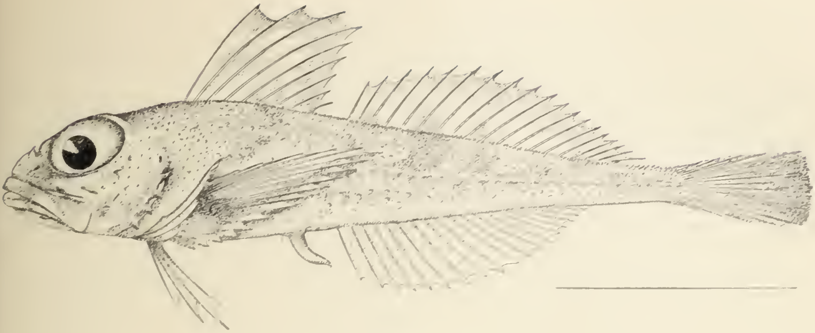


691

690. Artediellus atlanticus. (P. 1906.)
691. Ruscarius meanyi. (P. 1908.)



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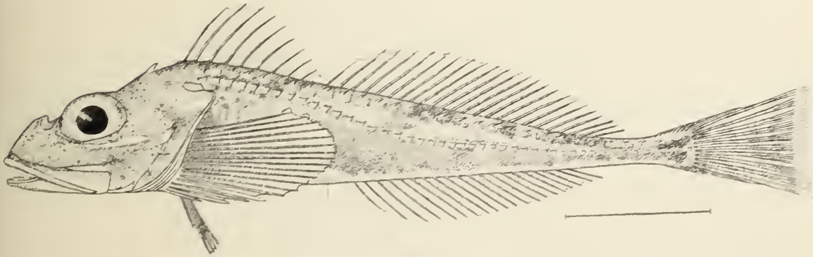

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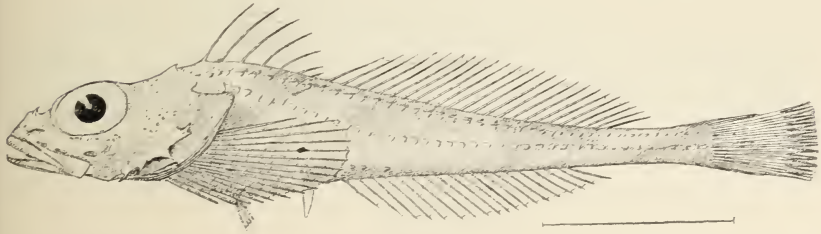
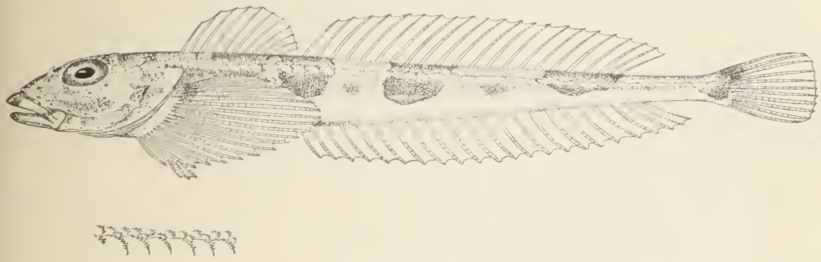


694

692. Rastrinus scutiger. (P. 1909.)
693. Icelus spiniger. (P. 1914.)
694. Icelus canaliculatus. (P. 1917.)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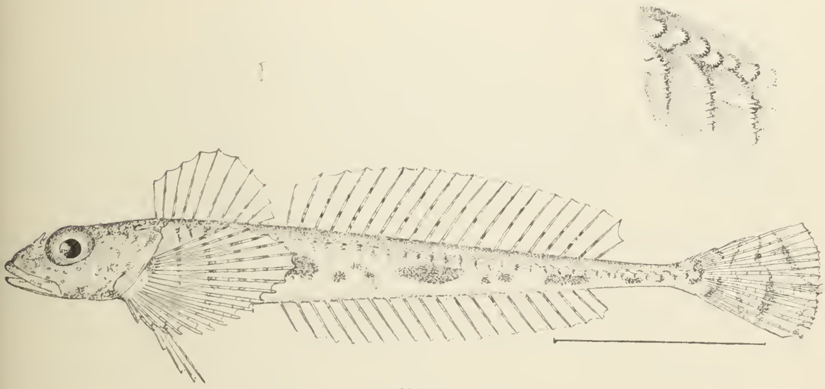
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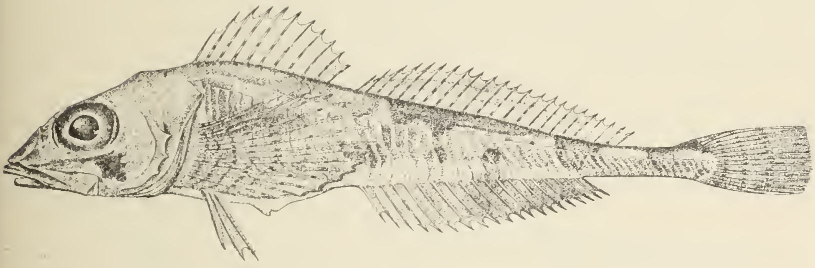
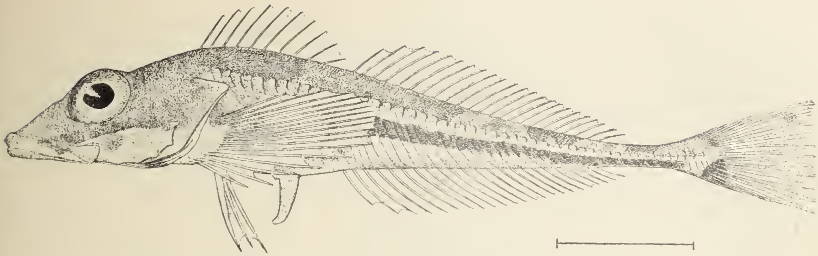

697

695. Radulinus boleoides. (P. 1919.)
696. Radulinus asprellus. (P. 1920.)
697. Triglops pingeli. (P. 1923.)



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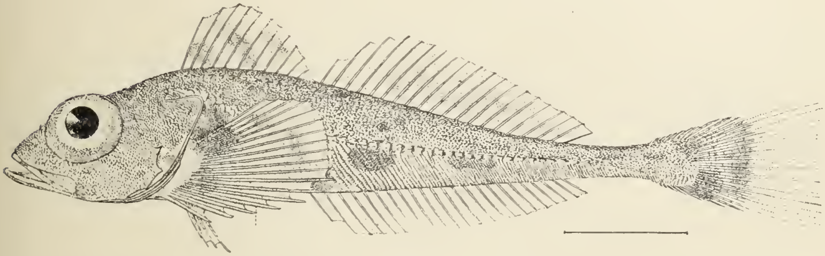

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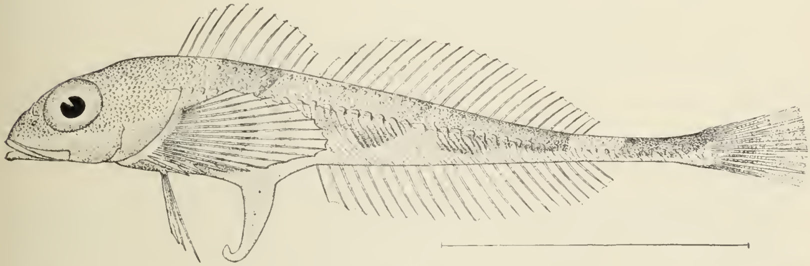

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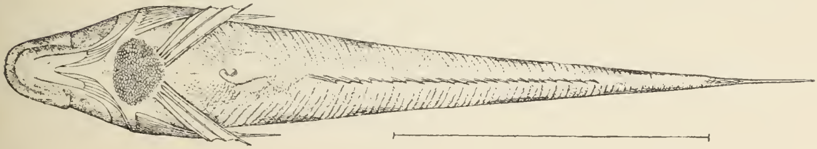
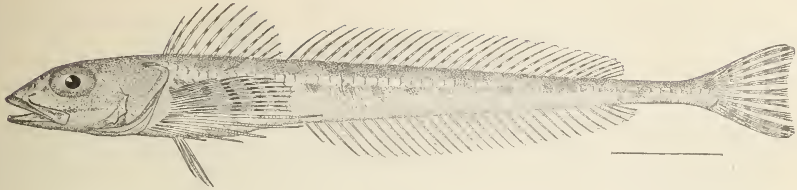


700*a*

698. Triglops beani. (P. 1924.)
699. Triglops scepticus. (P. 1925.)
700, 700*a*. Sternias xenostethus. (P. 1927.)



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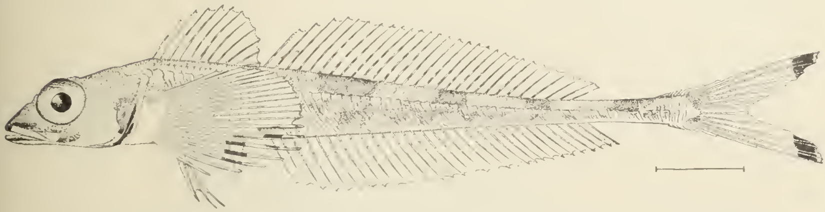

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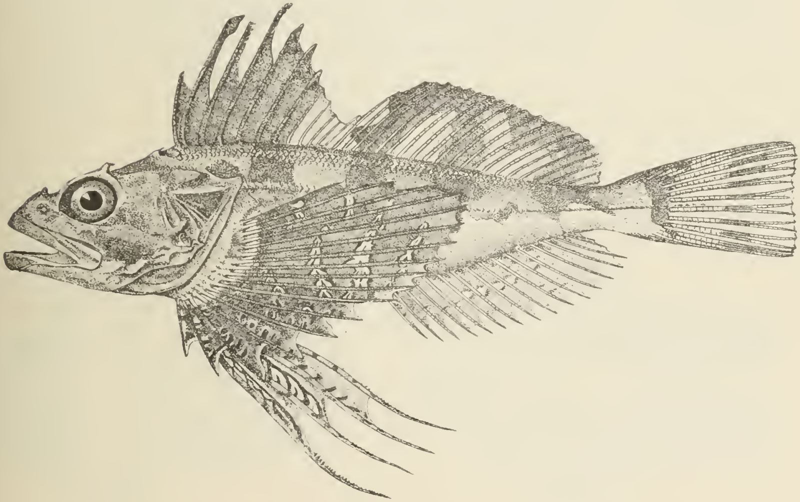
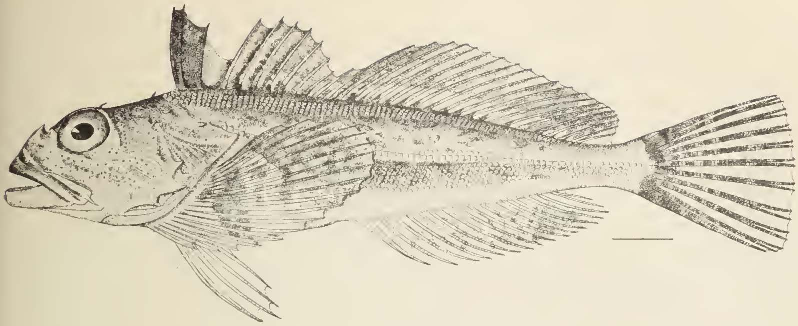


703

701. Prionistius macellus. (P. 1928.)
702. Elanura forficata. (P. 1930.)
703. Melletes papilio. (P. 1932.)



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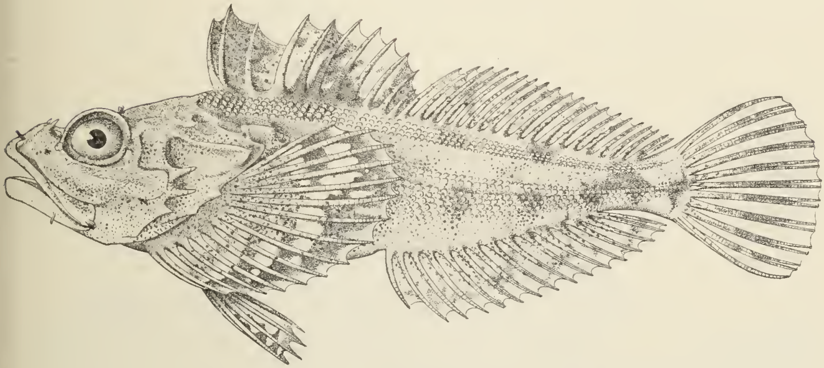

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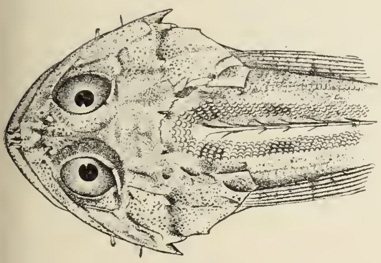
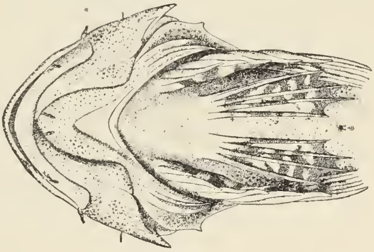
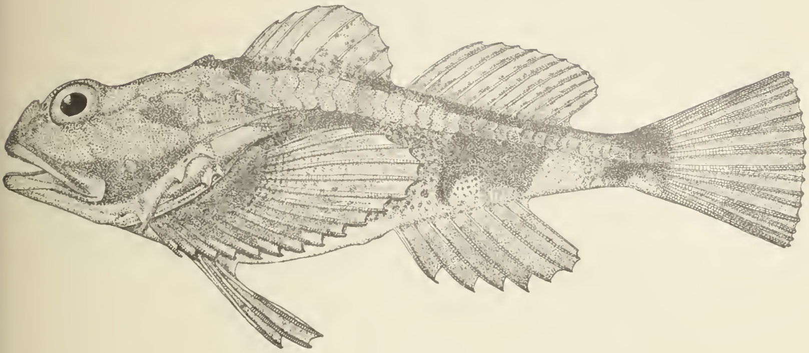


705*a*



705*b*

704. Hemilepidotus jordani. (P. 1934.)
705, 705*a*, 705*b*. Hemilepidotus hemilepidotus. (P. 1935.)



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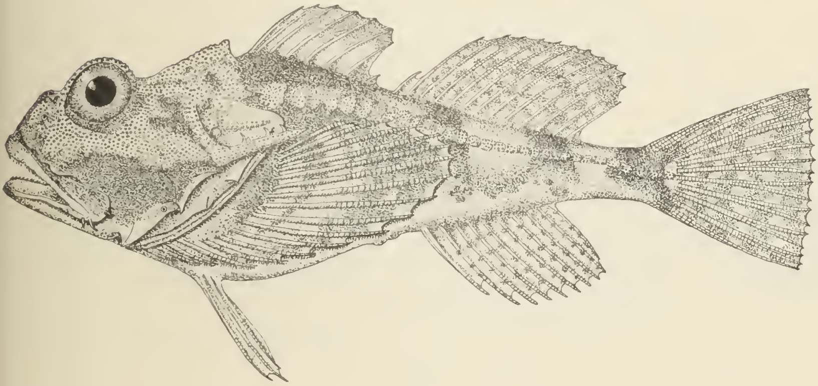
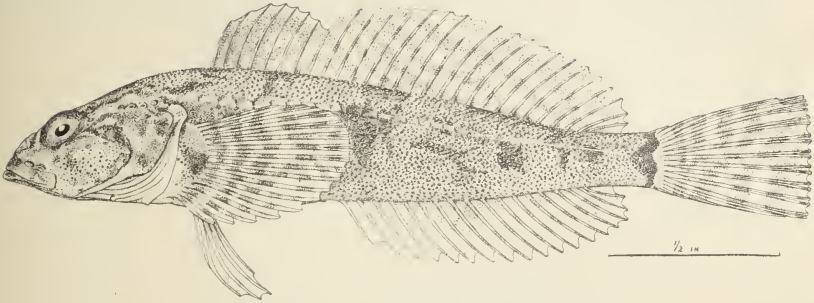


707

706. Enophrys bison. (P. 1938.)
707. Ceratocottus diceraus. (P. 1940.)



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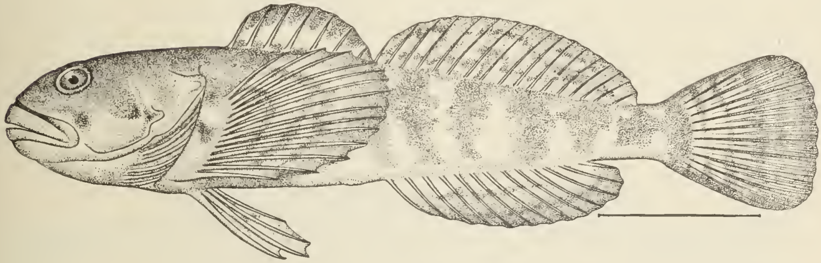
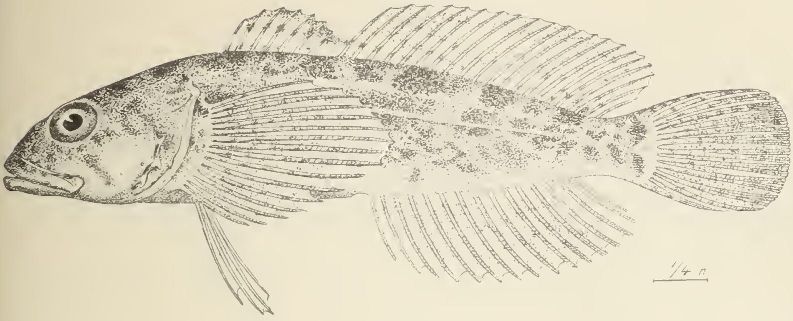


709

708. Cottus evermanni. (P. 1945.)
709. Cottus punctulatus. (P. 1948.)



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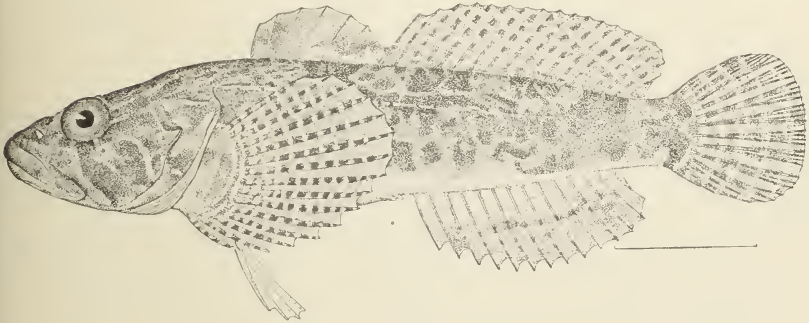

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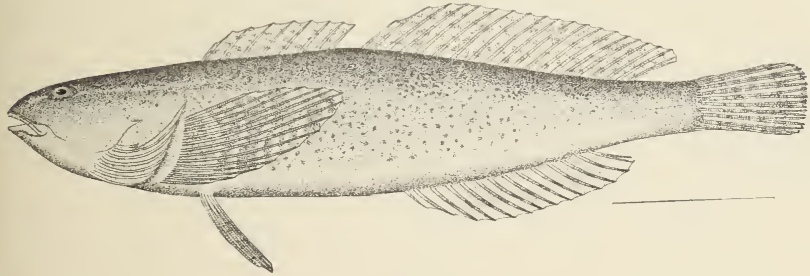
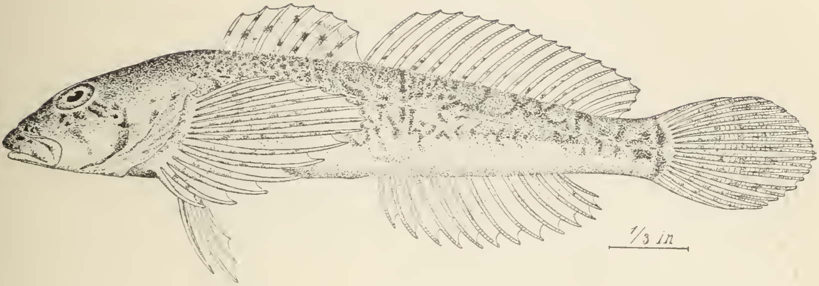


712

710. Cottus perplexus. (P. 1955.)
711. Cottus klamathensis. (P. 1955.)
712. Cottus aleuticus. (P. 1957.)



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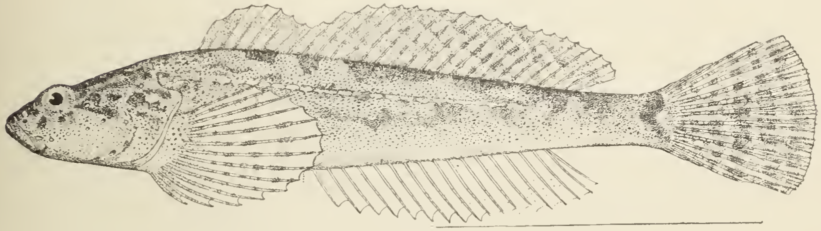

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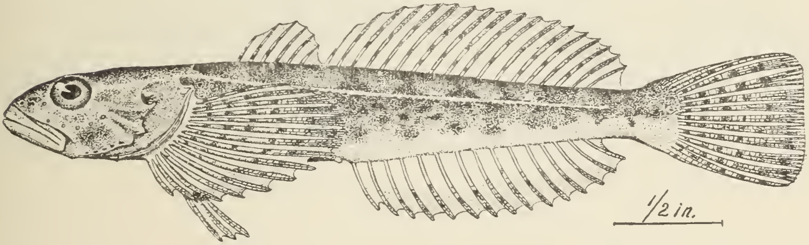
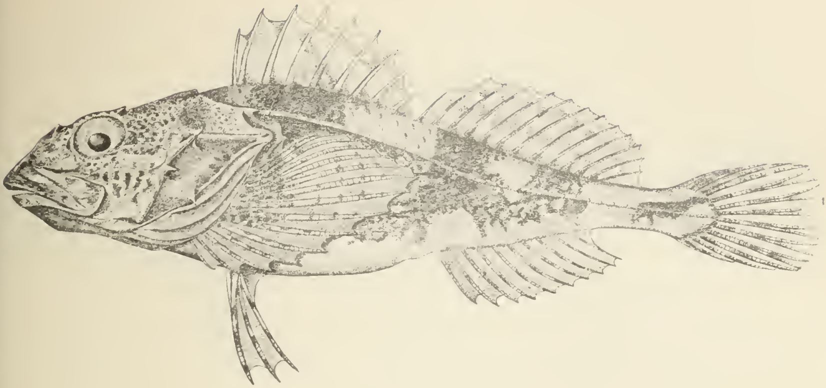


715

713. Cottus leiopomus. (P. 1962.)
714. Cottus princeps. (P. 1962.)
715. Uranidea tenuis. (P. 1966.)



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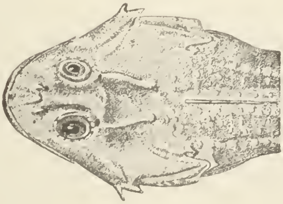
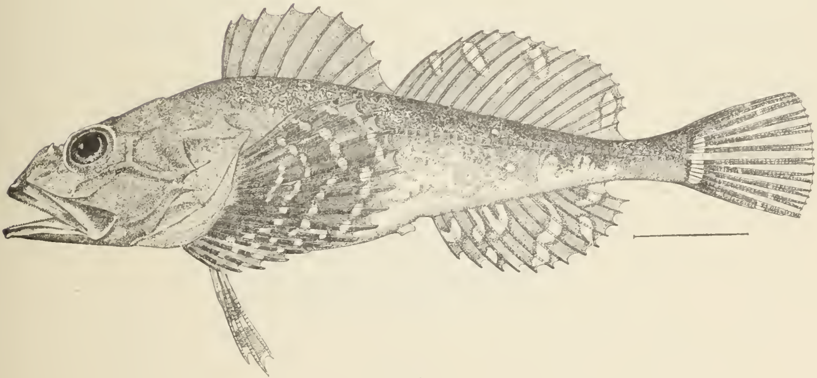
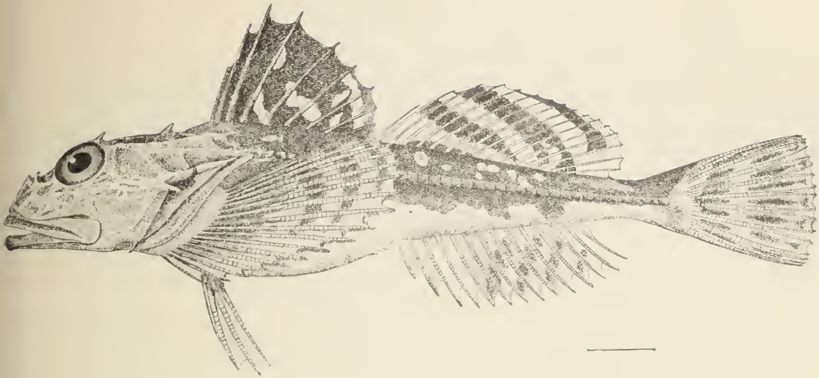


716*a*



717

716, 716*a*. Myoxocephalus æneus. (P. 1972.)
717. Myoxocephalus scorpius. (P. 1974.)



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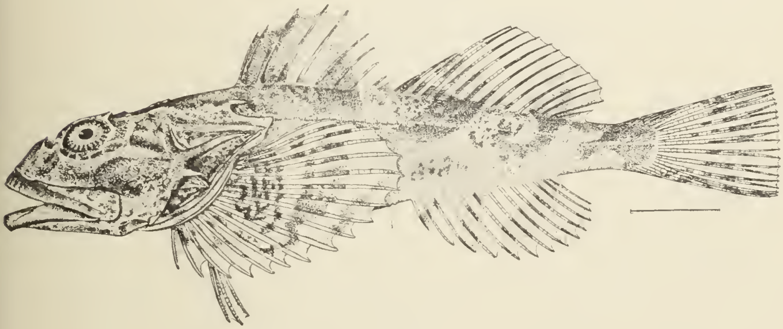

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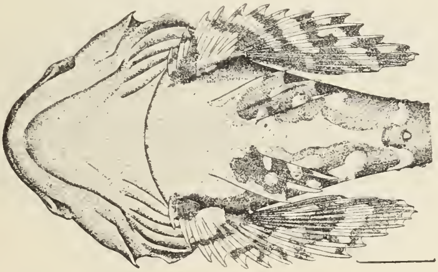
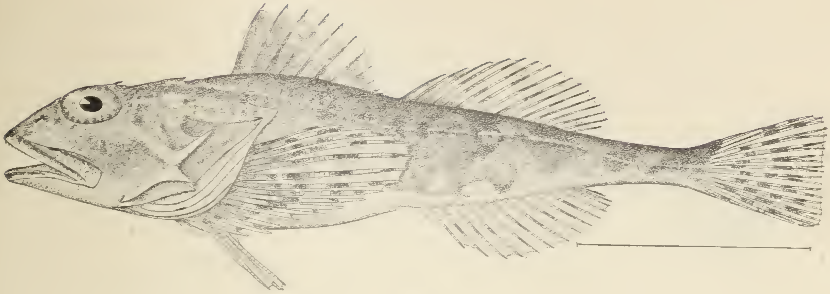


720

718. Myoxocephalus octodecimspinosus. (P. 1976.)
719. Myoxocephalus polyacanthocephalus. (P. 1976.)
720. Myoxocephalus jaok. (P. 1977.)



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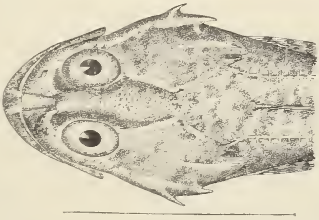
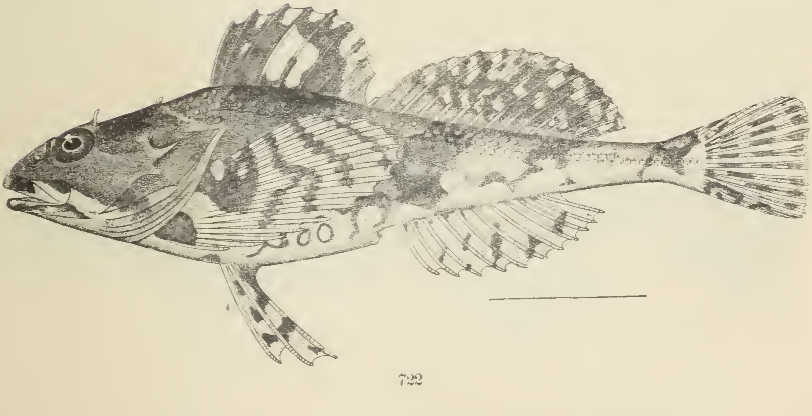
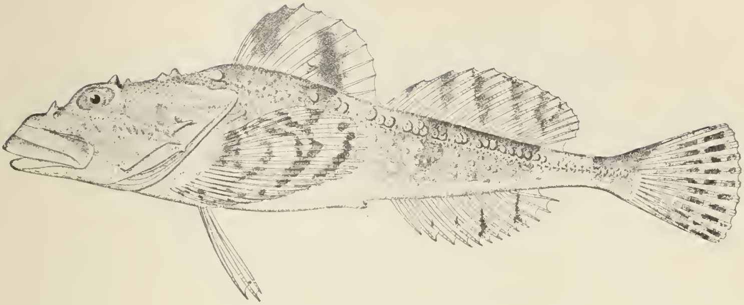


721*a*



722

721, 721*a*. MYOXOCEPHALUS VERRUCOSUS. (P. 1979.)
722. MYOXOCEPHALUS AXILLARIS. (P. 1980.)



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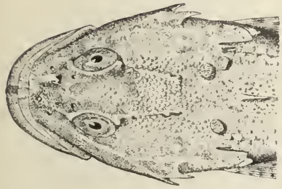
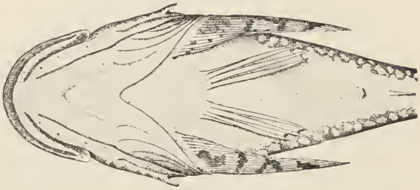
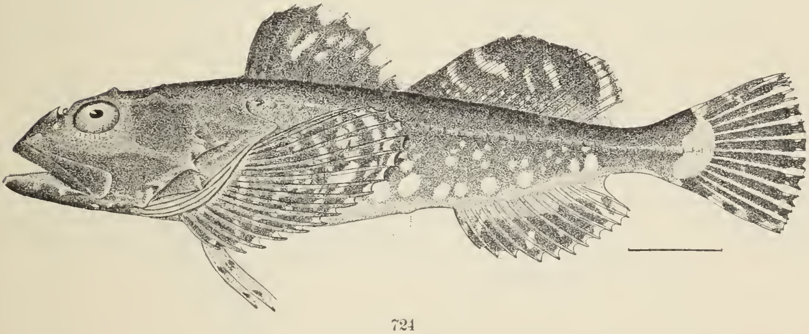


723*a*

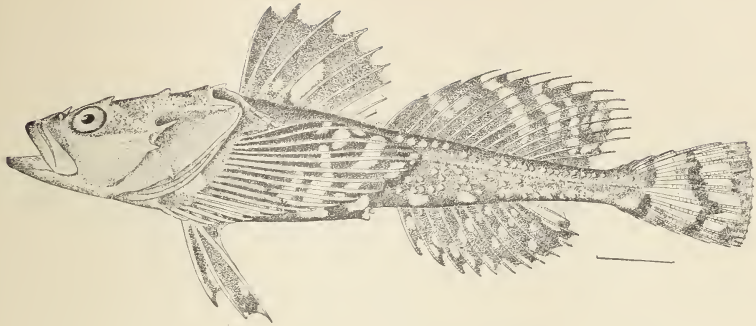


723*b*



724

723, 723*a*, 723*b*. MYOXOCEPHALUS STELLERI. (P. 1981.)
724. MYOXOCEPHALUS NIGER. (P. 1985.)



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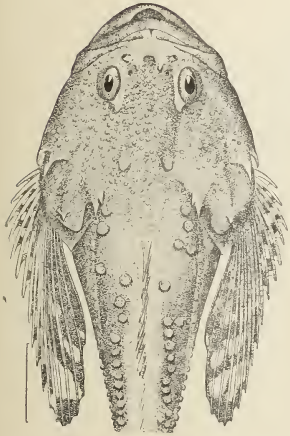
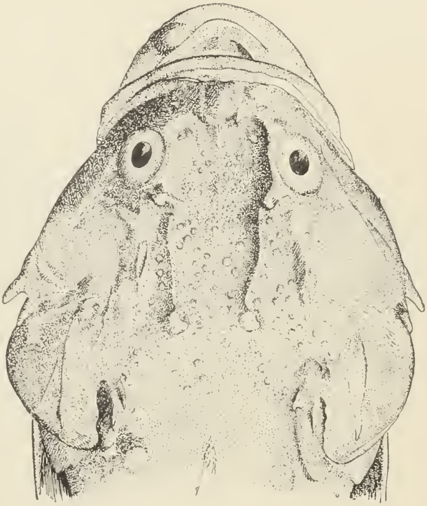
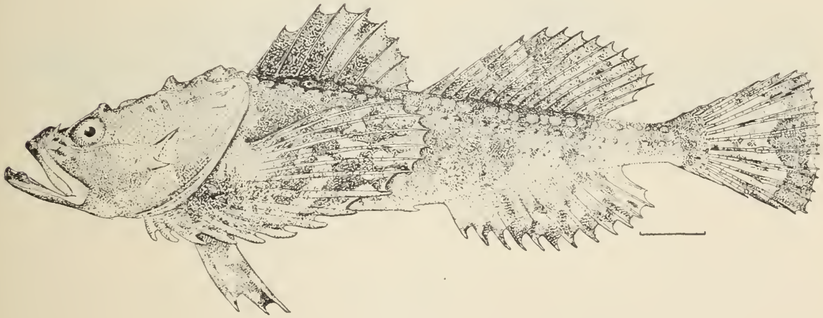


725*a*

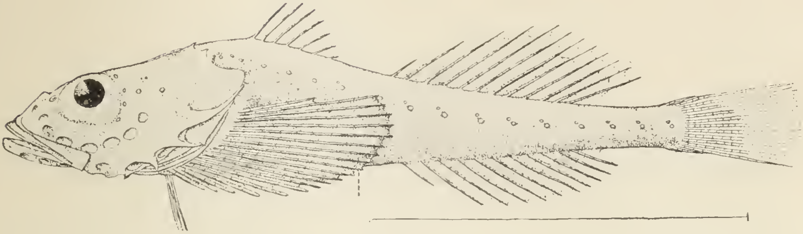


726*a*



726

725, 725*a*. Megalocottus platycephalus. (P. 1987.)
726, 726*a*. Megalocottus laticeps. (P. 1988.)



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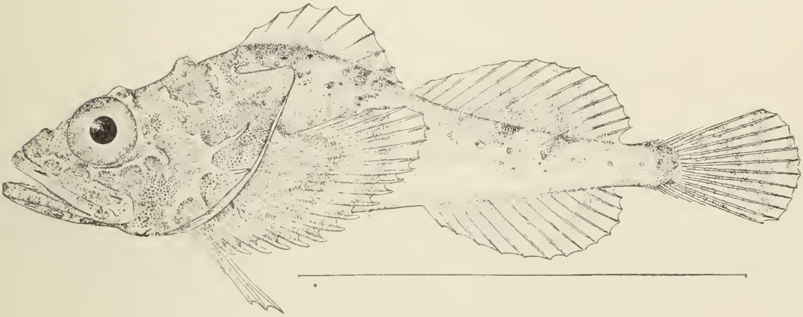

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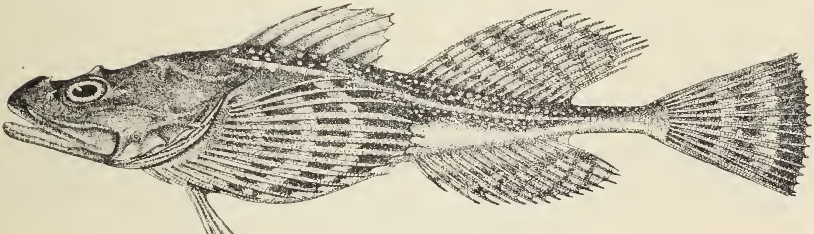
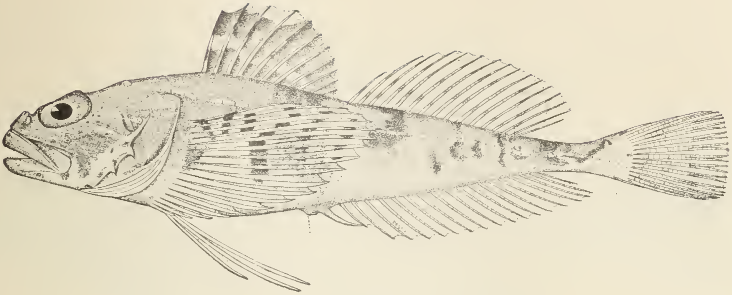


729

727. Zesticelus profundorum. (P. 1990.)
728. Dasycottus setiger. (P. 1991.)
729. Oncocottus quadricornis. (P. 2001.)



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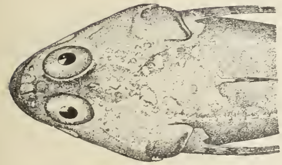
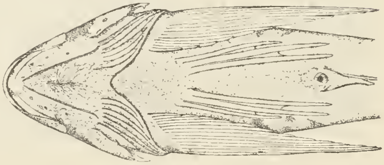
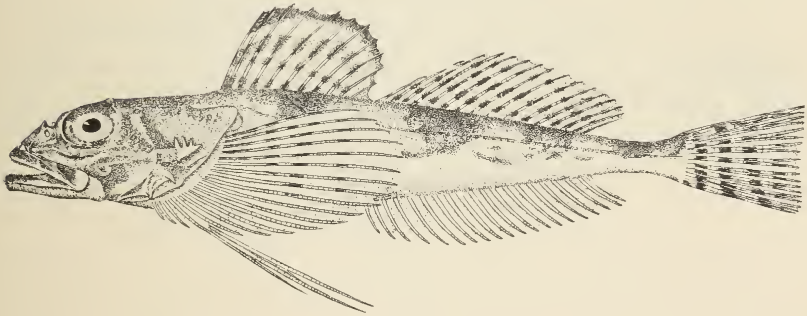


730*a*

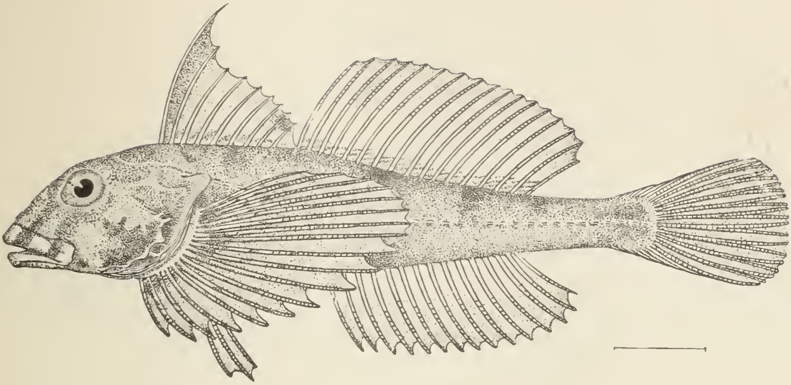


730*b*



731

730, 730*a*, 730*b*. Gymnocanthus pistilliger. (P. 2006.)
731. Gymnocanthus galeatus. (P. 2010.)



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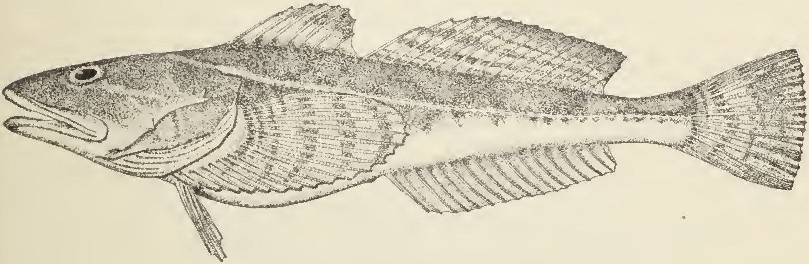

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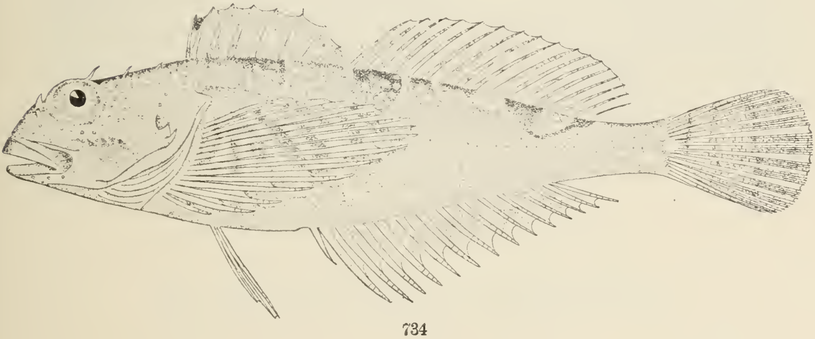
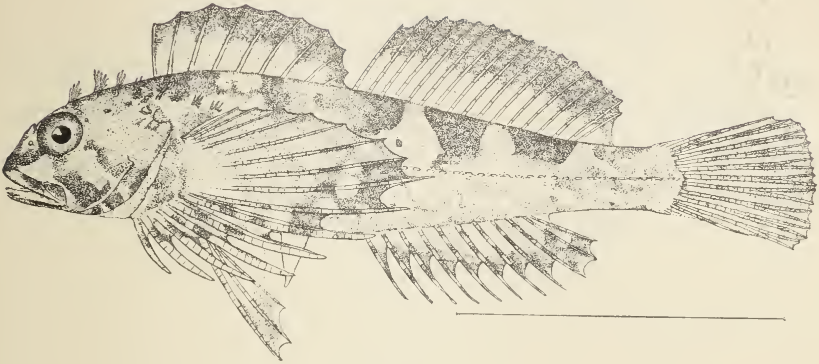


734

732. Leiocottus hirundo. (P. 2011.)
733. Leptocottus armatus. (P. 2012.)
734. Oligocottus maculosus. (P. 2013.)



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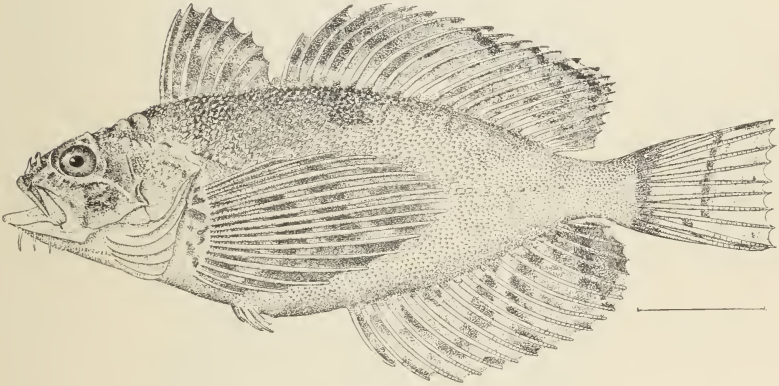
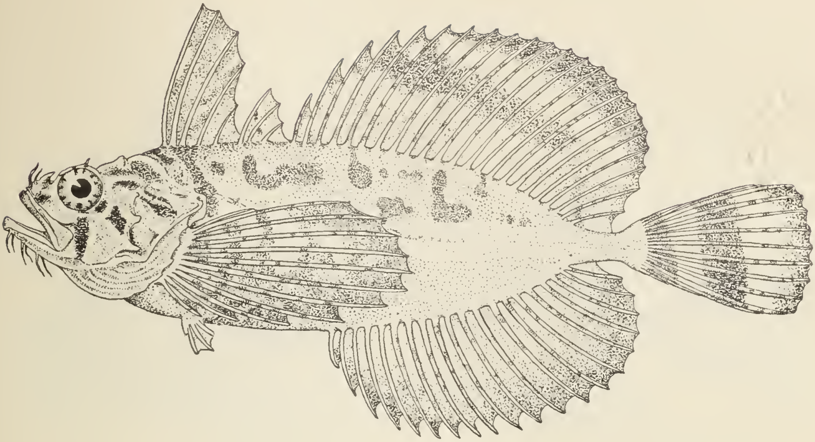


736

735. Blennicottus embryum. (Pp. 2016, 2864.)
736. Histiocottus bilobus. (P. 2018.)



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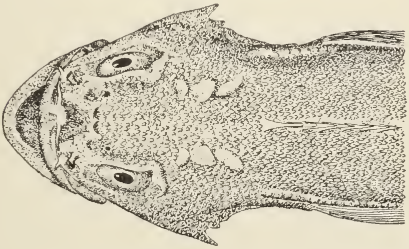
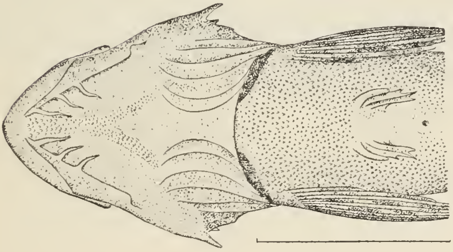
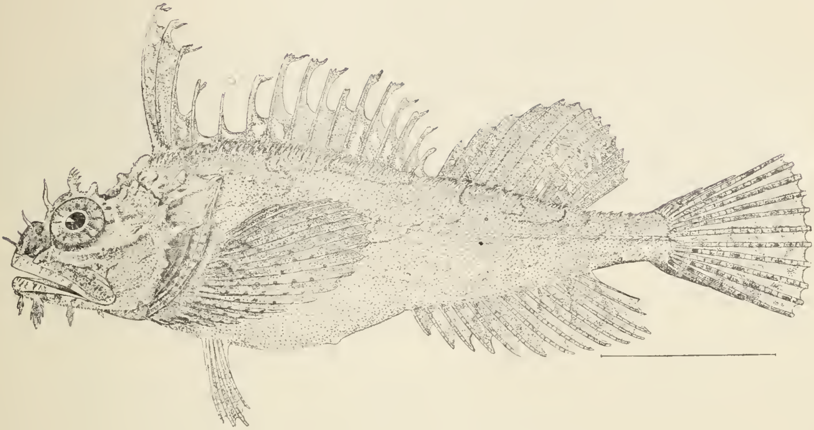


737*a*



737*b*

737, 737*a*, 737*b*. BLEPSIAS CIRRHOSUS. (P. 2018.)



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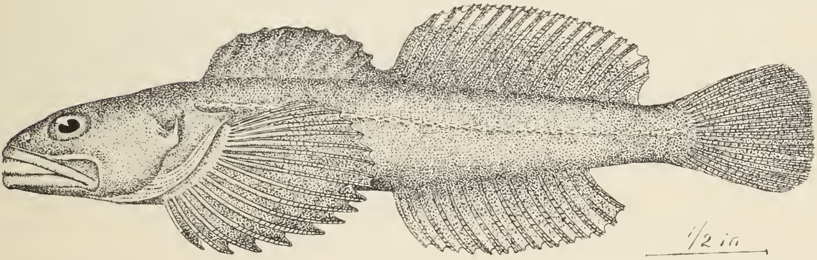
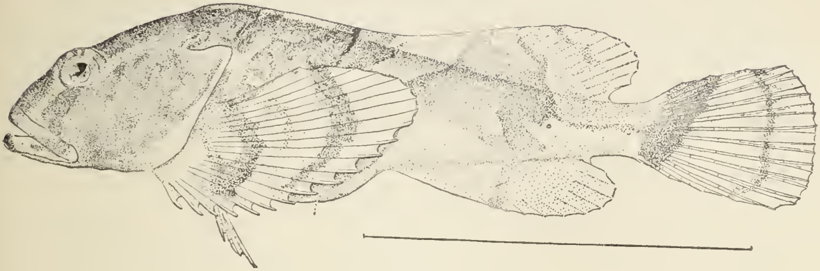


739

738. Hemitripterus americanus. (P. 2023.)
739. Ascelichthys rhodorus. (P. 2025.)



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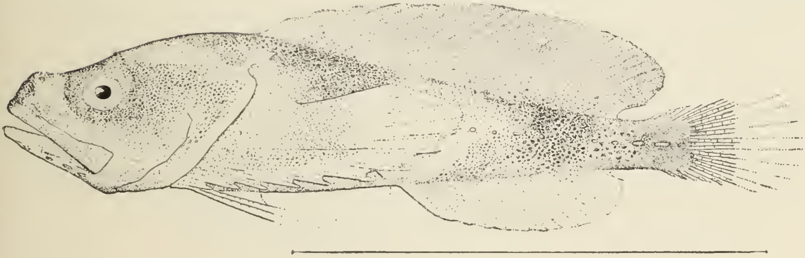
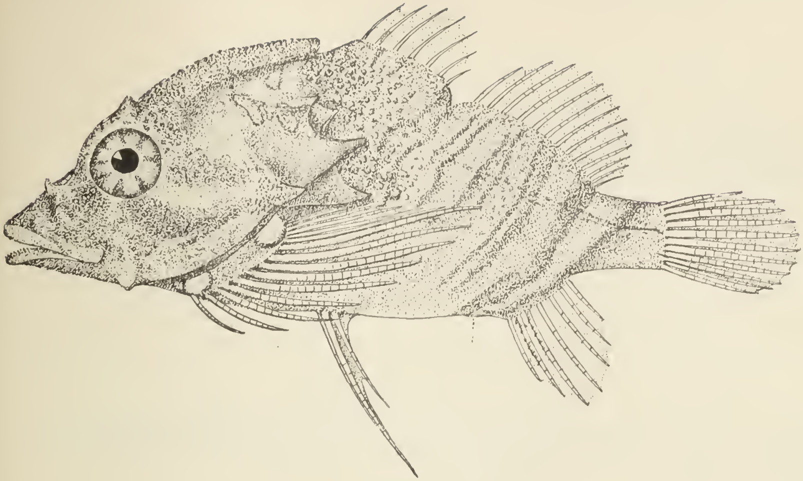


741

740. Psychrolutes paradoxus. (P. 2026.)
741. Gilbertidia sigolutes. (P. 2028.)



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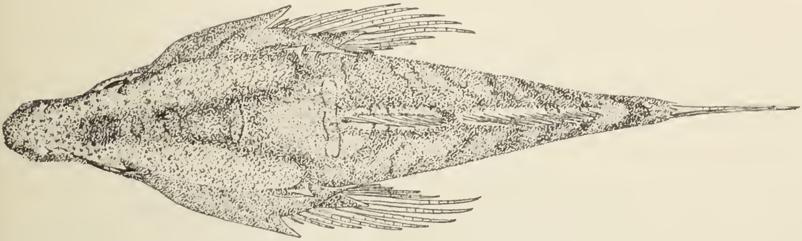
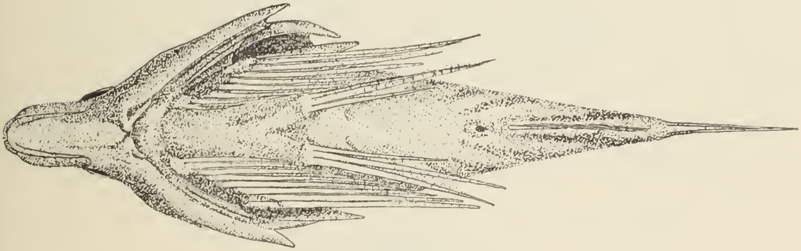
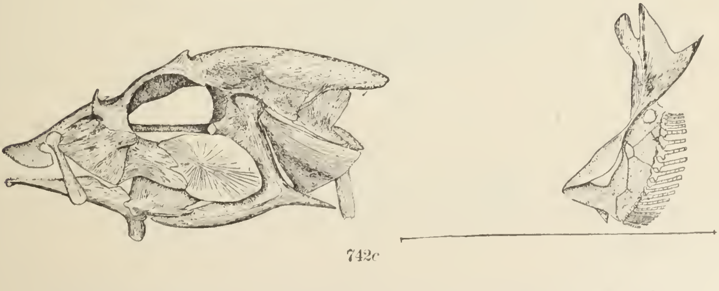


742*a*

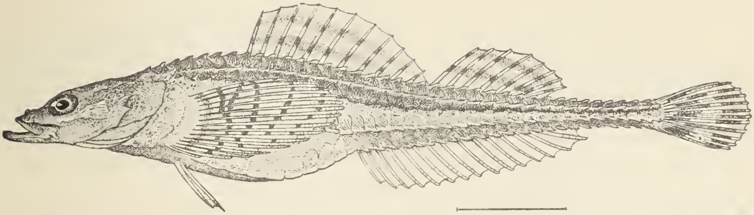


742*b*



742*c*

742, 742*a*, 742*b*, 742*c*. Rhamphocottus richardsoni. (P. 2030.)



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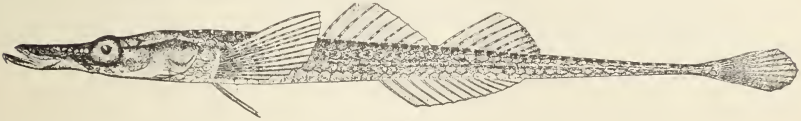

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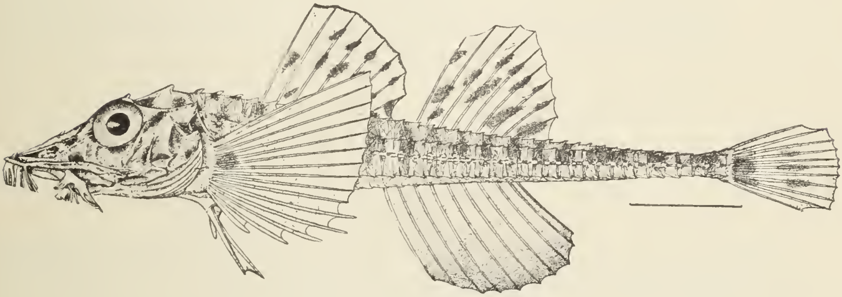

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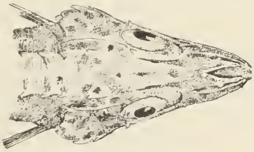
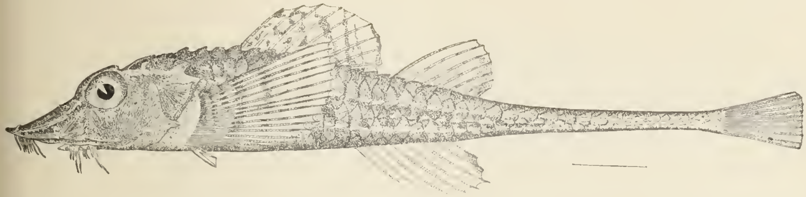


745*a*

743. Occa dodecaedron. (P. 2044.)
744. Pallasina barbata. (P. 2049.)
745, 745*a*. Podothecus accipiter. (P. 2055.)



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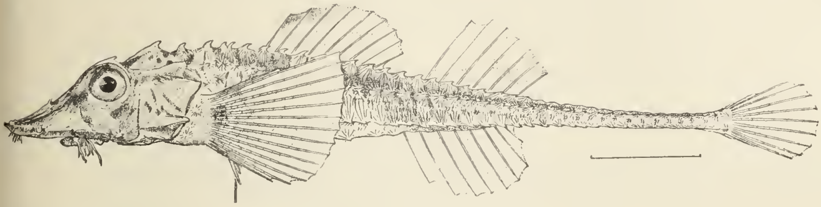

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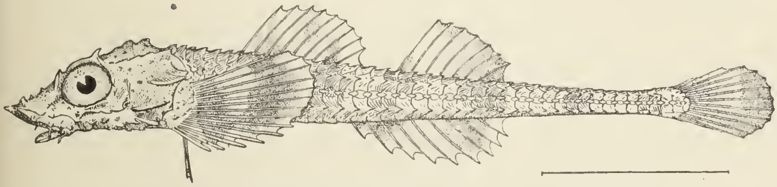

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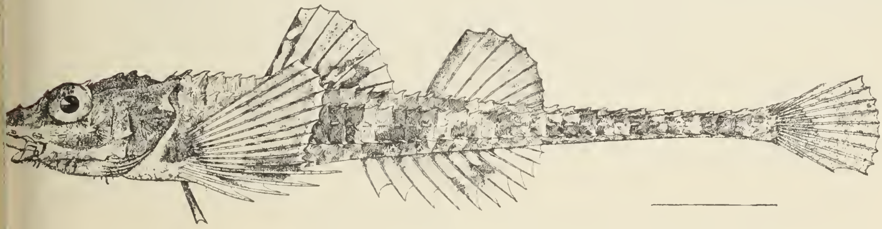
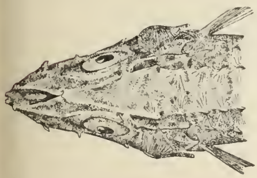
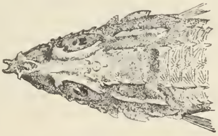


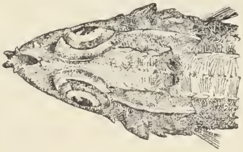
749



747*a*

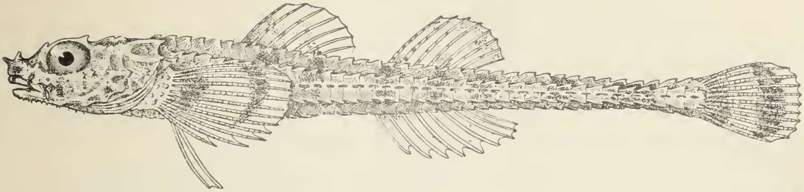


748*a*



749*a*

746. Podothecus acipenserinus. (P. 2061.)
747, 747*a*. Podothecus veternus. (P. 2063.)
748, 748*a*. Stelgis vulsus. (P. 2067.)
749, 749*a*. Averruncus emmelane. (P. 2069.)



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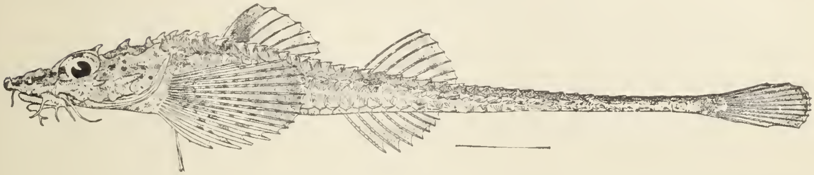

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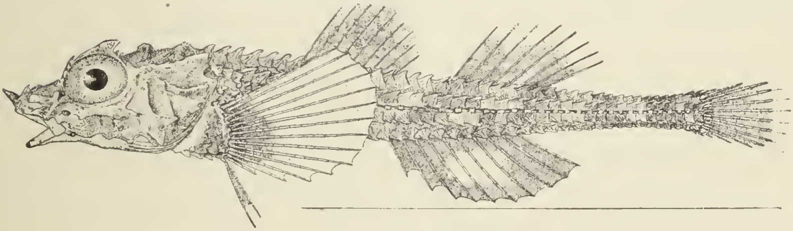

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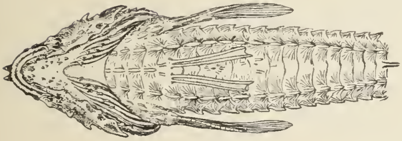

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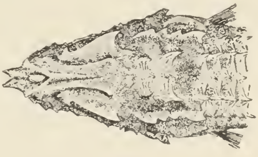
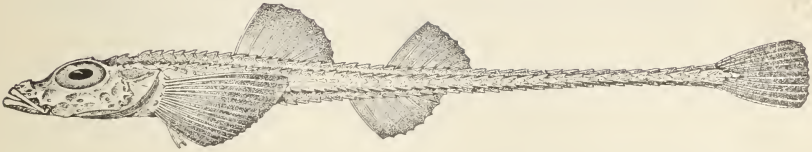


752*a*

750, 750*a*. AVERRUNCUS STERLETUS. (P. 2071.)
751. SARRITOR FRENATUS. (P. 2073.)
752, 752*a*. XYSTES AXINOPHRYS. (P. 2076.)



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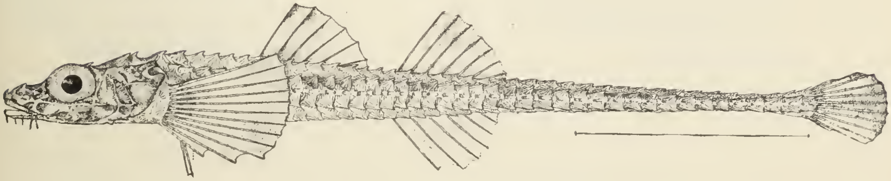

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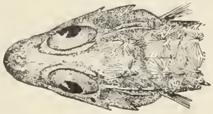
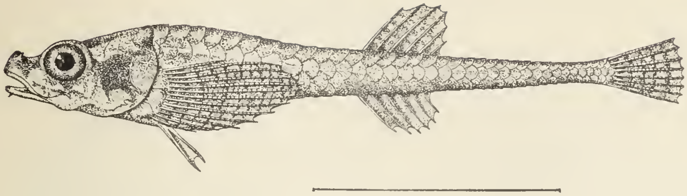


754*a*

753. BATHYAGONUS NIGRIPINNIS. (P. 2078.)
754, 754*a*. XENOCHIRUS TRIACANTHUS. (P. 2084.)



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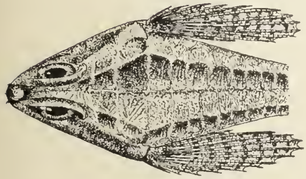

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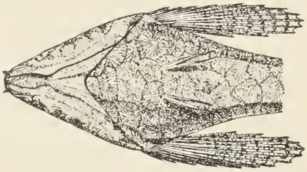

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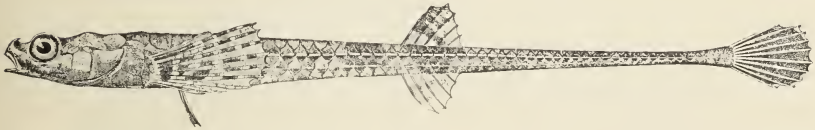

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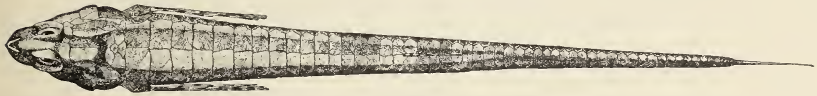
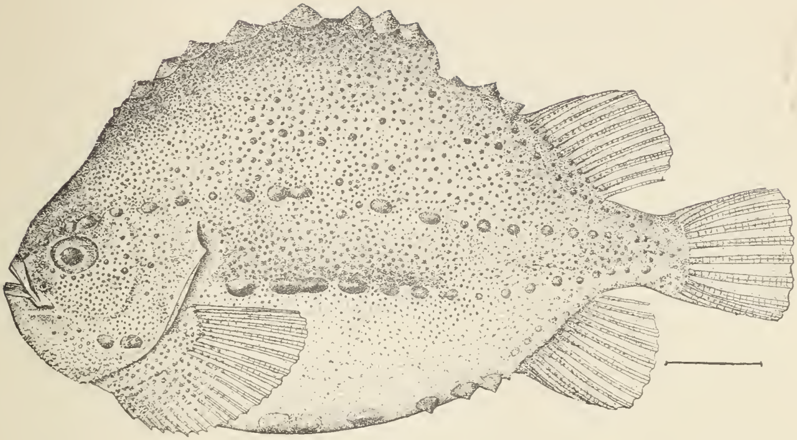


756*a*

755, 755*a*, 755*b*. Aspidophoroides guntheri. (P. 2090.)
756, 756*a*. Aspidophoroides monopterygius. (P. 2091.)



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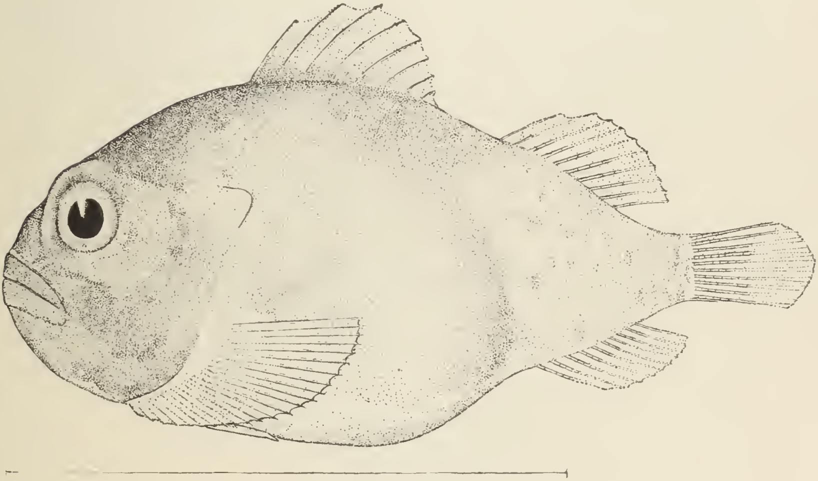

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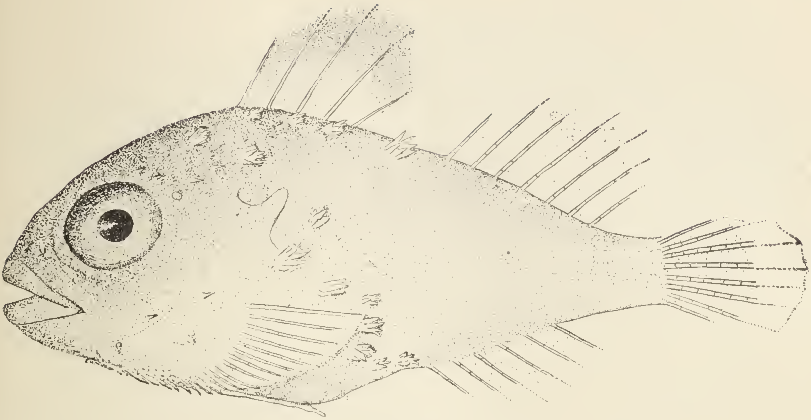
757. Cyclopterus lumpus. (P. 2096.)
758. Lethotremus muticus. (P. 2101.)



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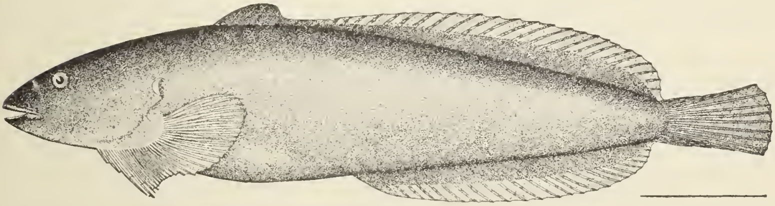

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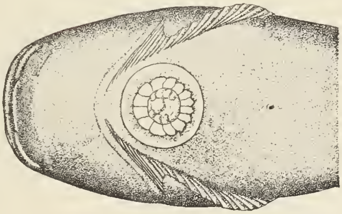

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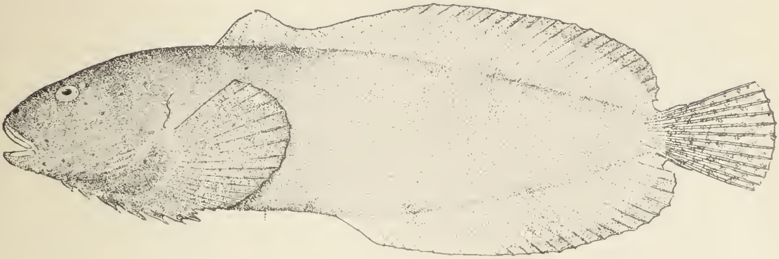
759. Lethotremus vinolentus. (P. 2101.)
760, 760*a*. Neoliparis callyodon. (P. 2110.)



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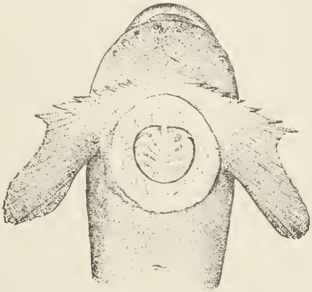

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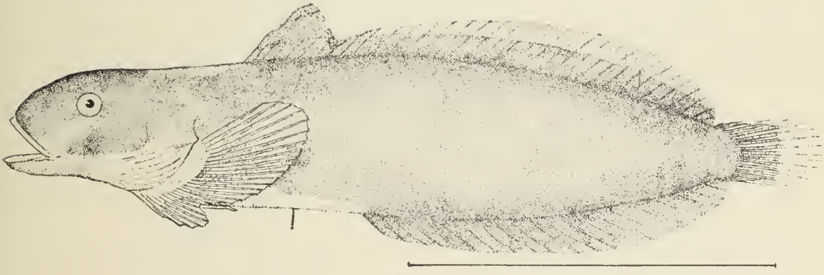

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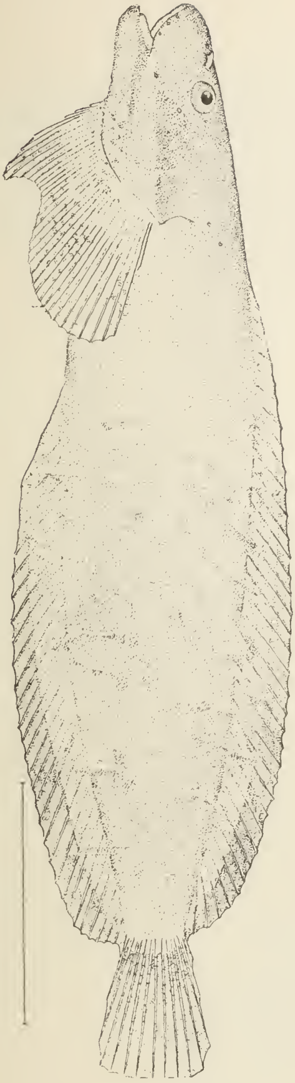
761, 761*a*. Neoliparis mucosus. (P. 2111.)
762. Neoliparis floræ. (P. 2111.)



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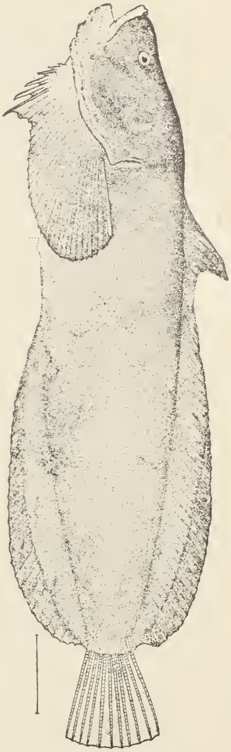

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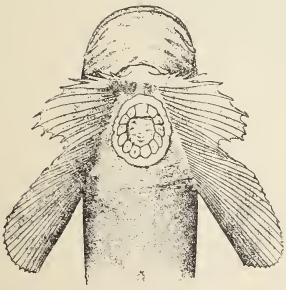

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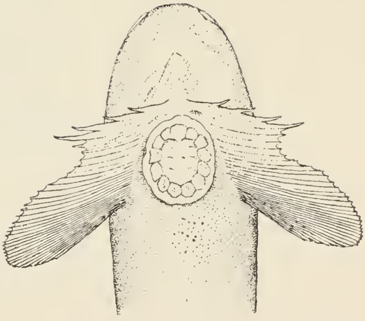
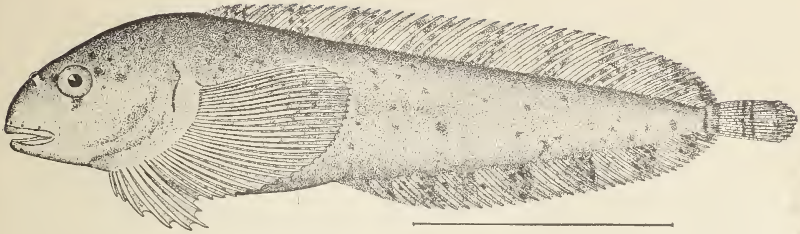


764*a*

763, 763*a*. NEOLIPARIS GREENI. (P. 2112.)
764, 764*a*. LIPARIS CYCLOPUS. (P. 2118.)



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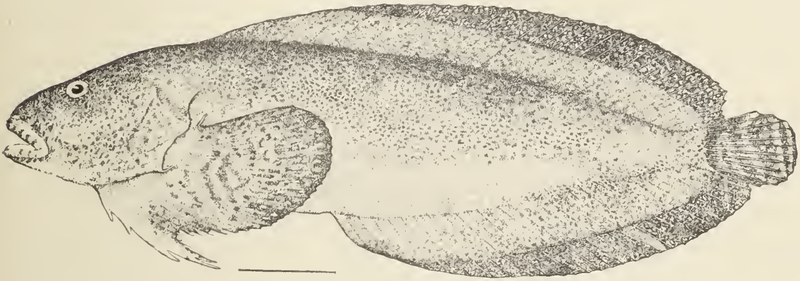

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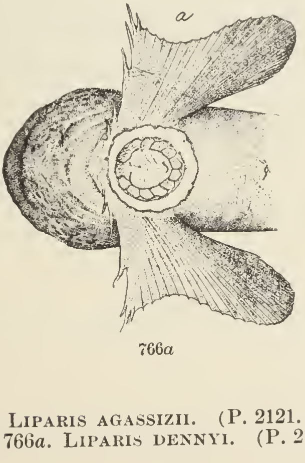
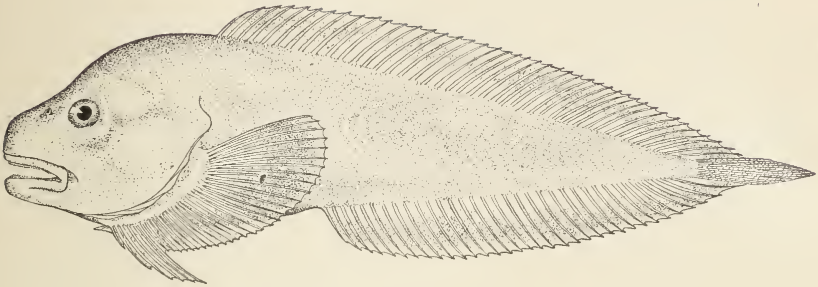


766*a*

765. Liparis agassizii. (P. 2121.)
766, 766*a*. Liparis dennyi. (P. 2124.)



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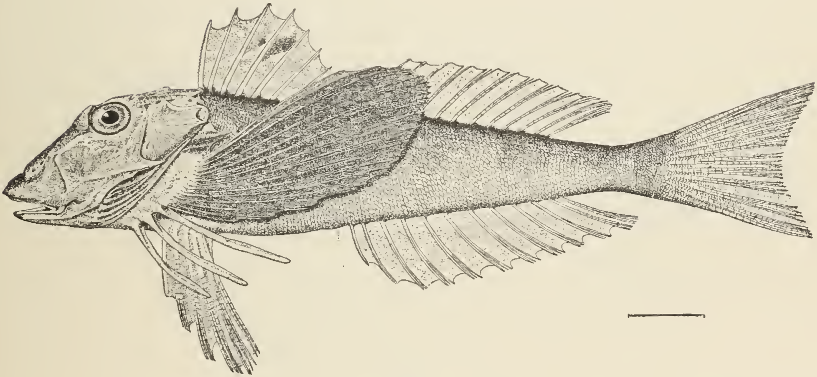

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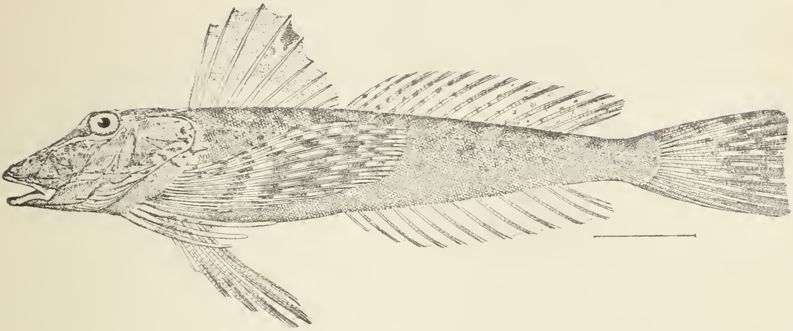
767. Bathyphasma ovigerum. (P. 2128.)
768. Prionotus carolinus. (P. 2156.)



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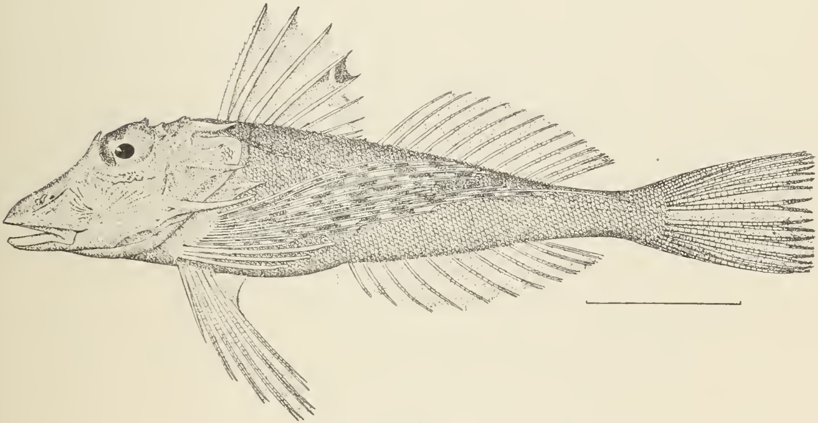

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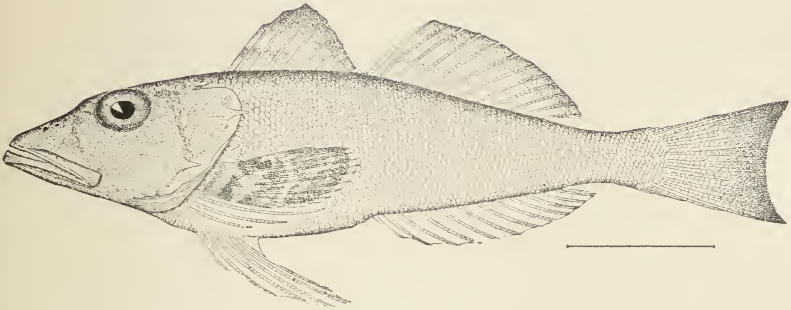
769. Prionotus scitulus. (P. 2157.)
770. Prionotus alatus. (P. 2159.)



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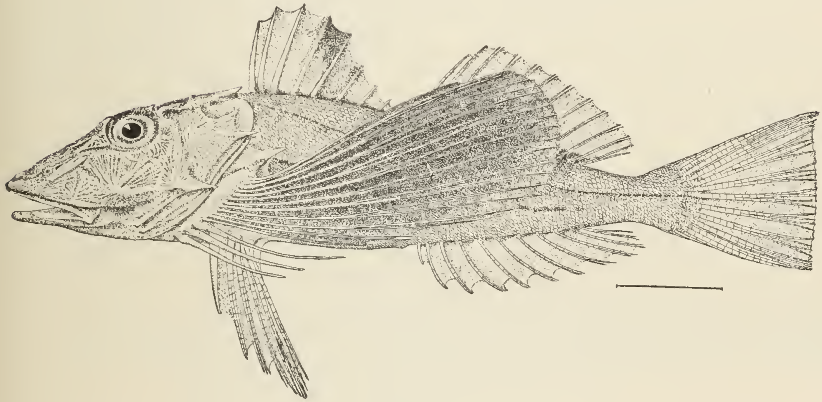

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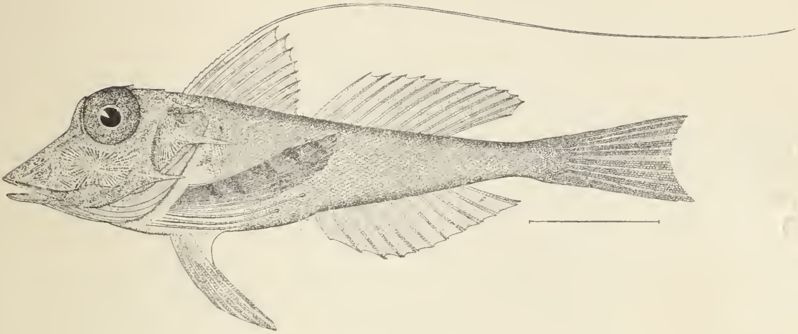
771. Prionotus stearnsi. (P. 2166.)
772. Prionotus evolans. (P. 2168.)



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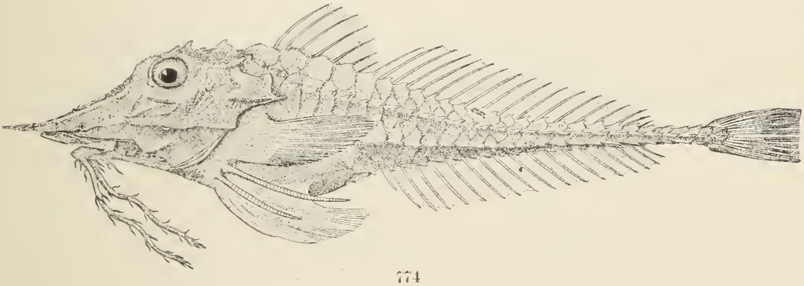

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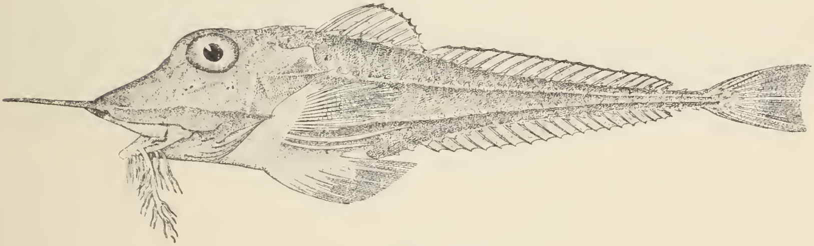

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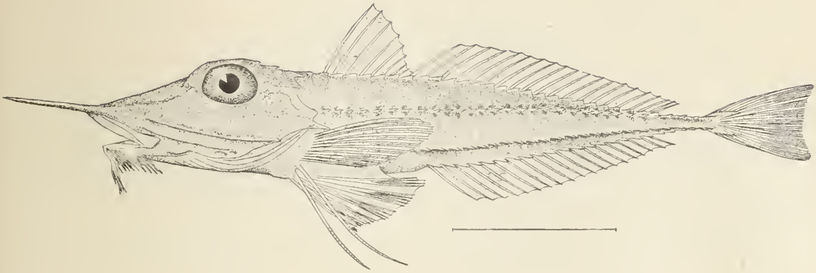
773. Bellator egretta. (P. 2174.)
774. Peristedion miniatum. (P. 2178.)
775. Peristedion longispathum. (P. 2178.)



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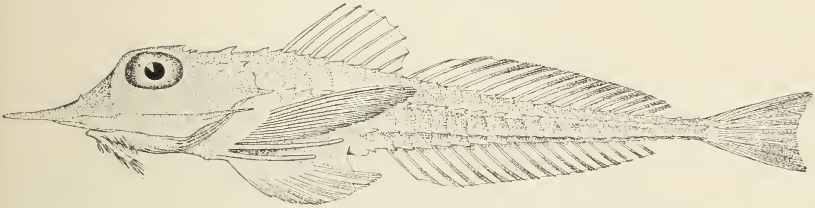

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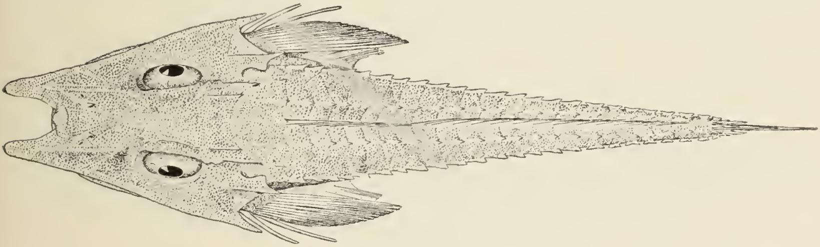
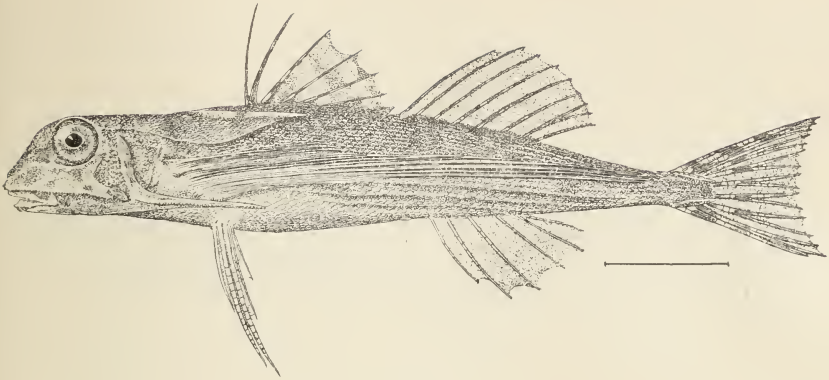


777*a*

776. Peristedion gracile. (P. 2179.)
777, 777*a*. Peristedion platycephalum. (P. 2180.)



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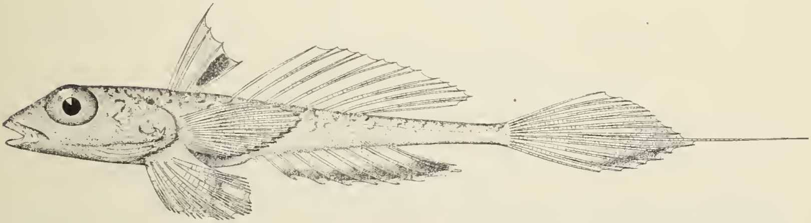

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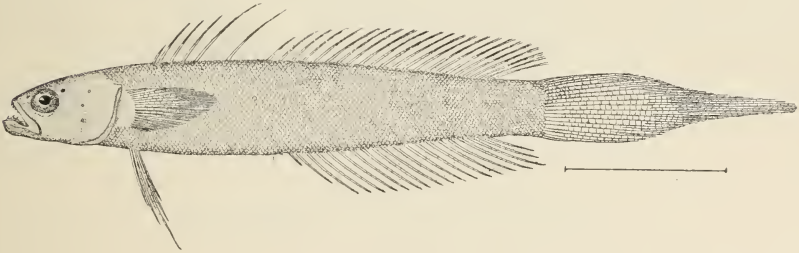
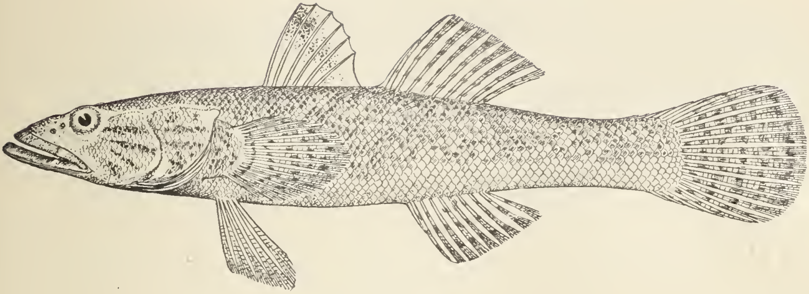


780

778. Cephalacanthus volitans. (P. 2183.)
779. Callionymus agassizii. (P. 2186.)
780. Ioglossus calliurus. (P. 2193.)



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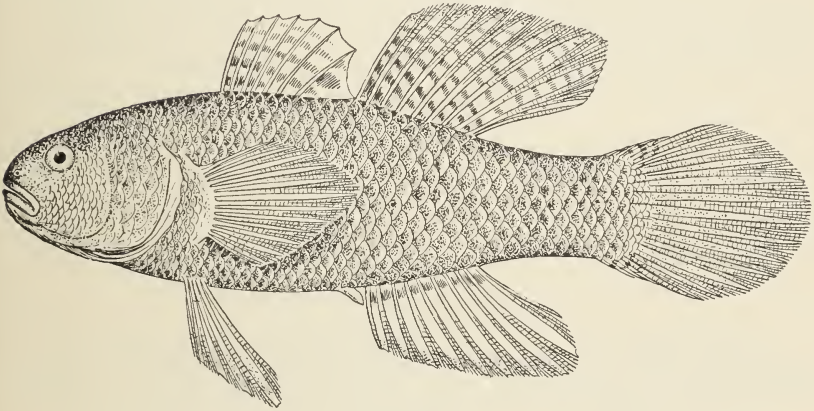

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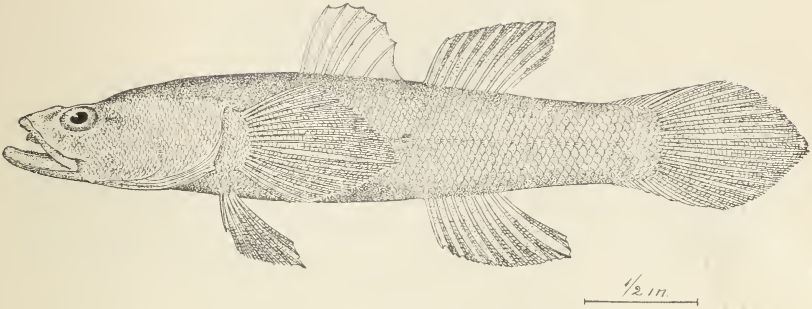
781. Philypnus dormitor. (P. 2194.)
782. Dormitator maculatus. (P. 2196.)



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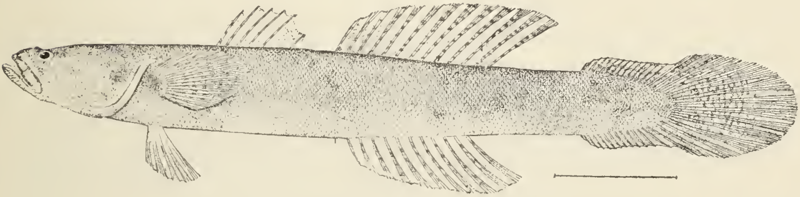

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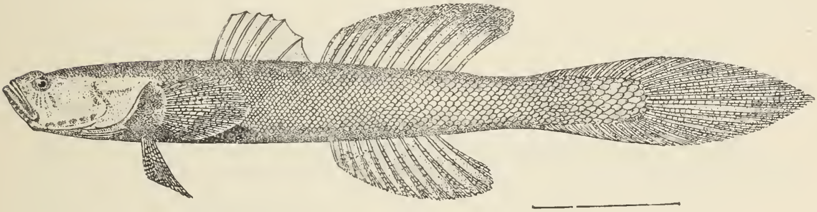

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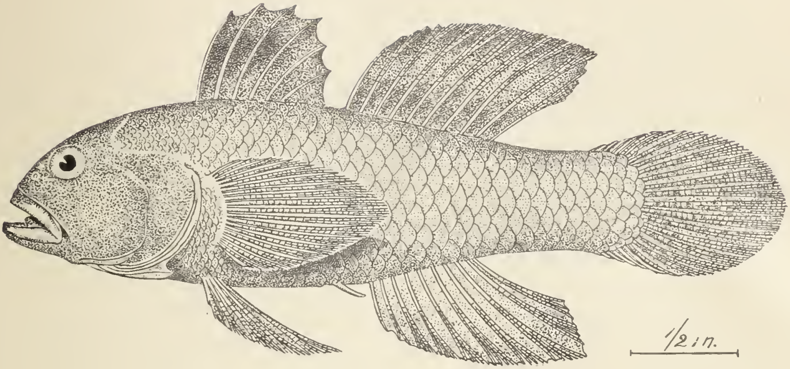
783. Eleotris pisonis. (P. 2200.)
784. Alexurus armiger. (P. 2203.)
785. Erotelis smaragdus. (P. 2204.)



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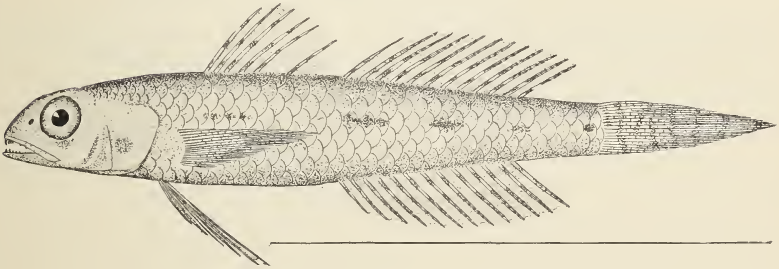

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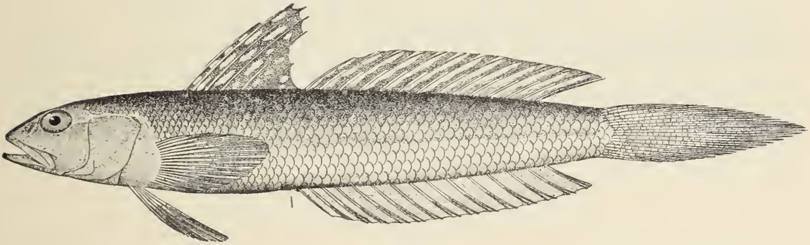

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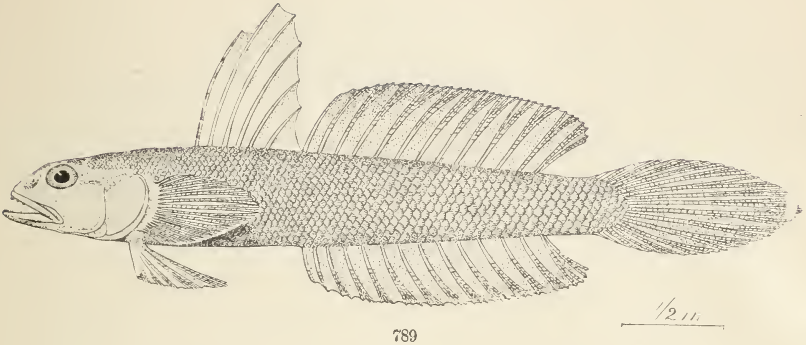
786. Lophogobius cyprinoides. (P. 2209.)
787. Gobius stigmaticus. (P. 2224.)
788. Gobius hastatus. (P. 2229.)



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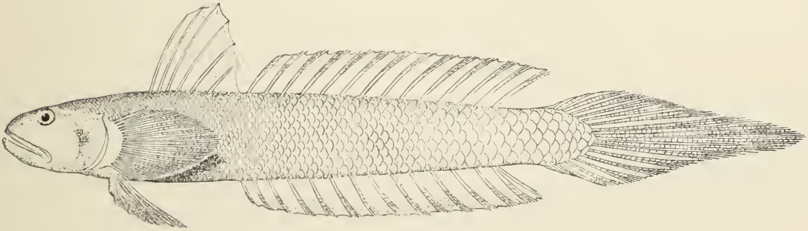

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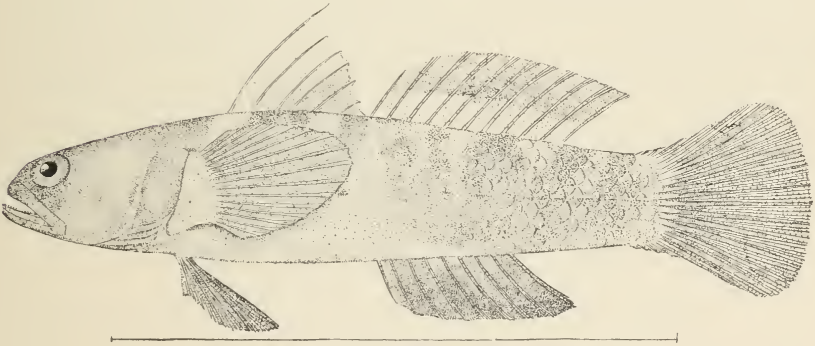

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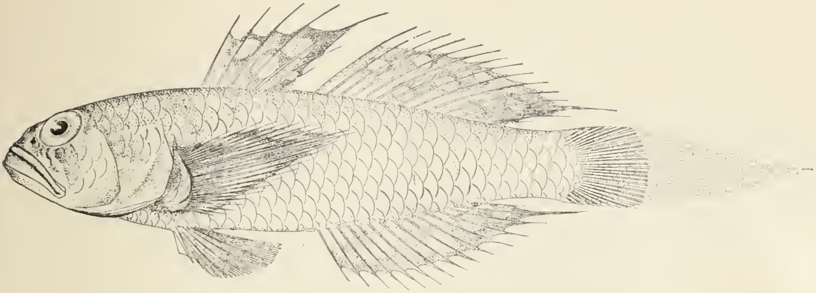
789 789*a*. Gobius oceanicus. (P. 2230.)
790 Garmannia paradoxa. (P. 2232.)



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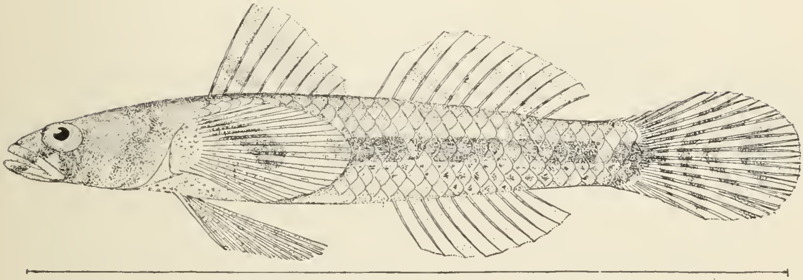

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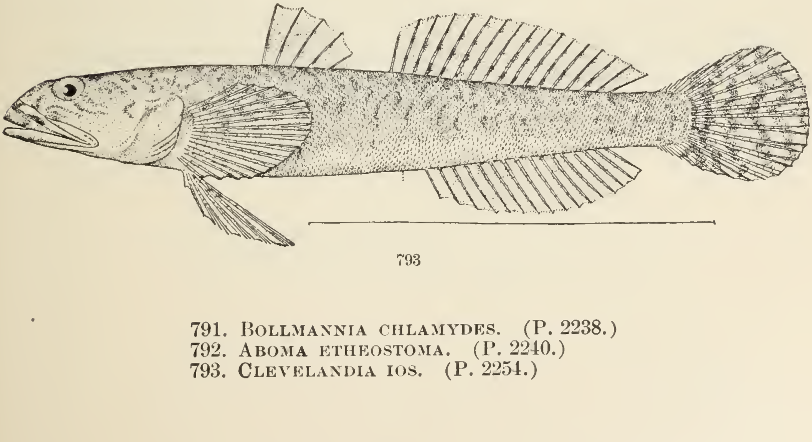

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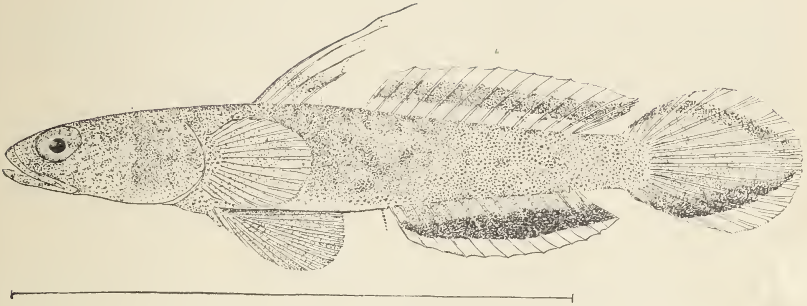
791. Bollmannia chlamydes. (P. 2238.)
792. Aboma etheostoma. (P. 2240.)
793. Clevelandia ios. (P. 2254.)



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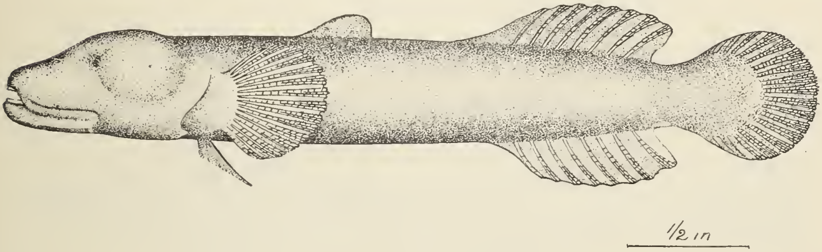

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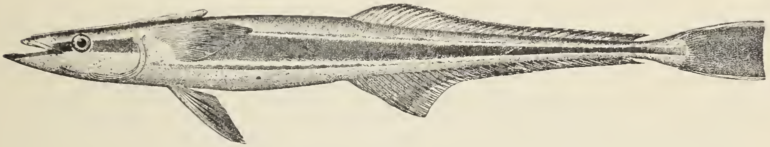

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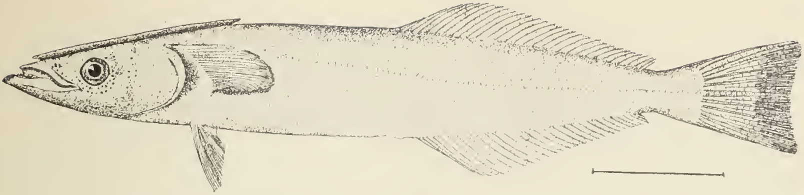
794. Evermannia zosterura. (P. 2256.)
795. Typhlogobius californiensis. (P. 2262.)
796. Echeneis naucrates. (P. 2269.)



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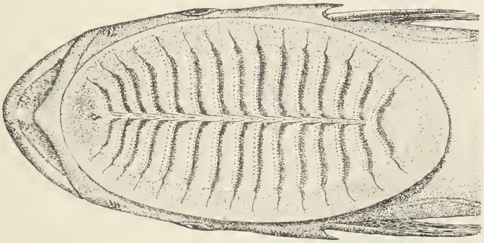
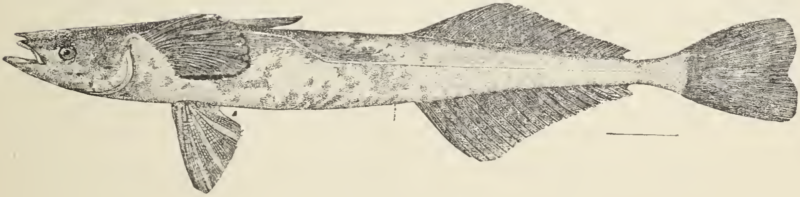


797*a*



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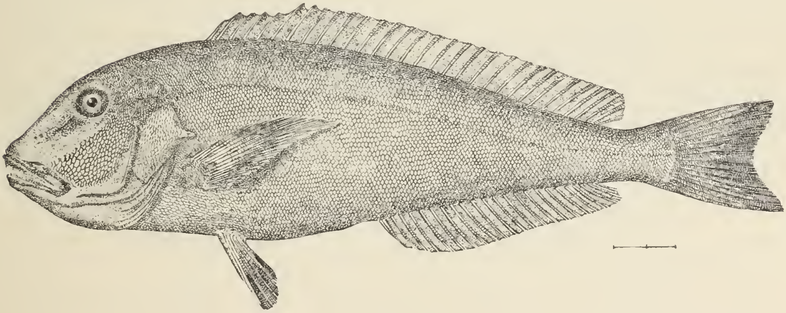
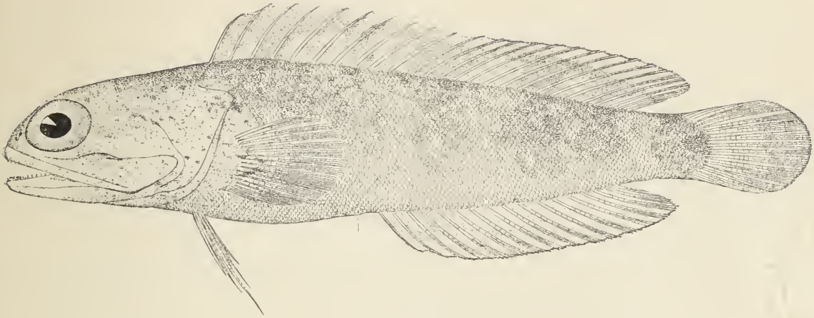


799

797, 797*a*. Remora brachyptera. (P. 2272.)
798. Rhombochirus osteochir. (P. 2273.)
799. Caulolatilus microps. (P. 2277.)



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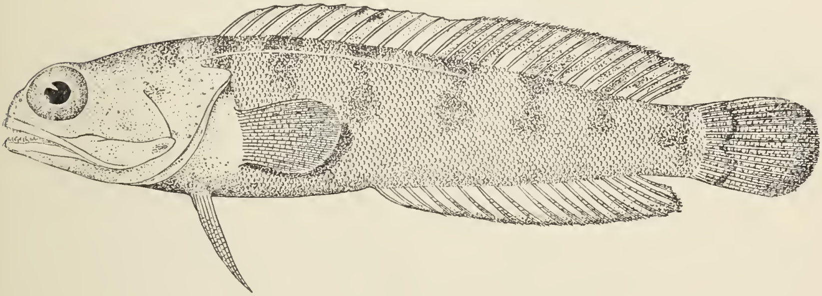

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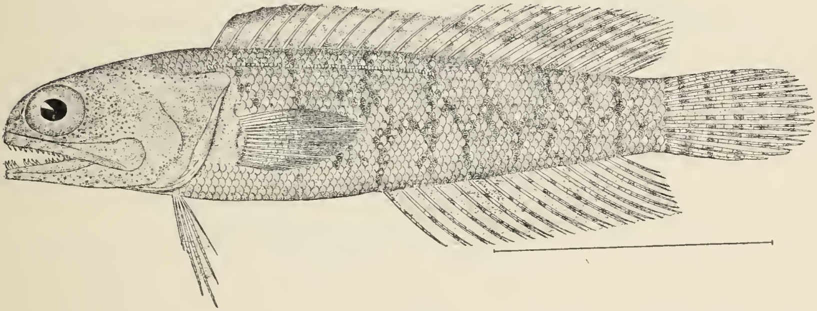
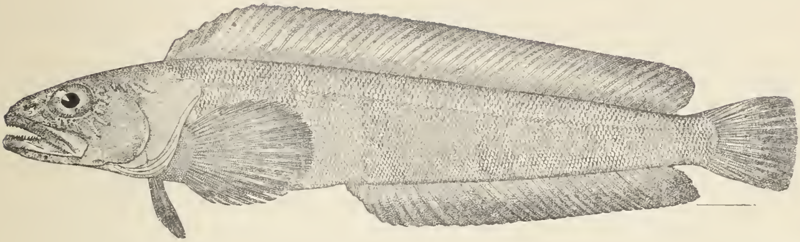


801

800, 800*a*. Opisthognathus macrognathum. (P. 2281.)
801. Gnathypops maxillosa. (P. 2284.)



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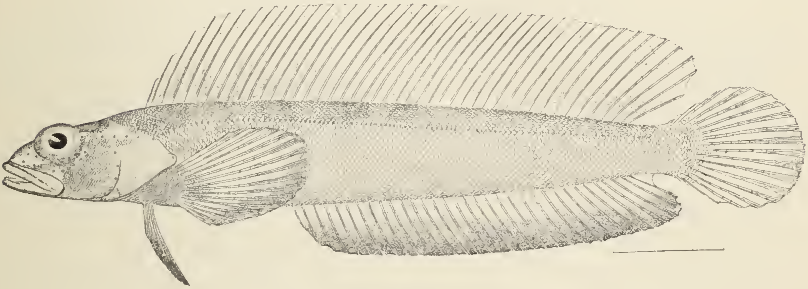

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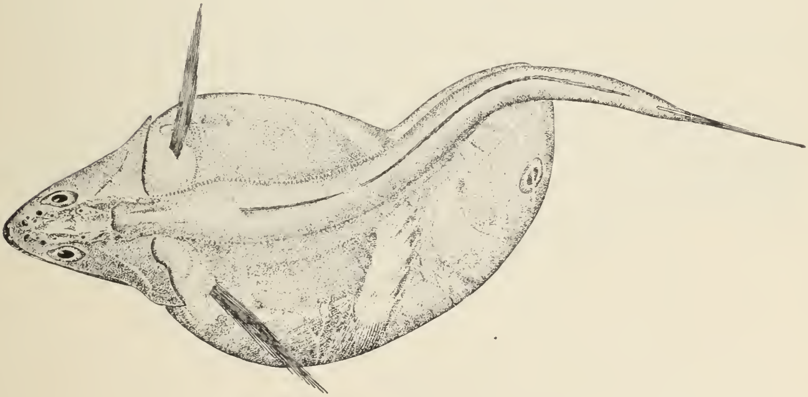

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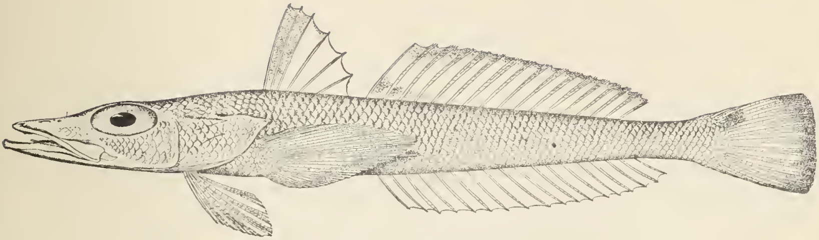
802. Bathymaster signatus. (P. 2288.)
803. Ronquilus jordani. (P. 2289.)
804. Chiasmodon niger. (P. 2291.)



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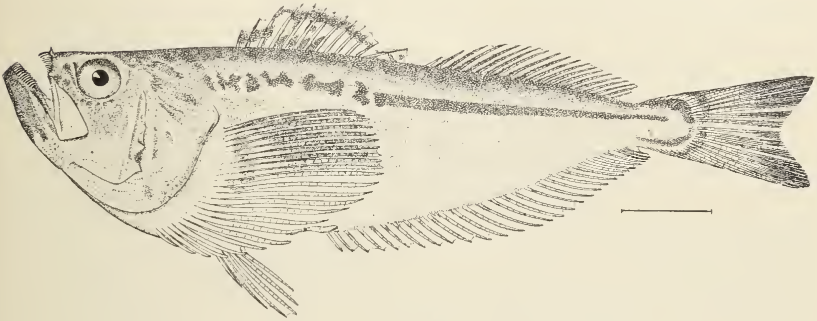

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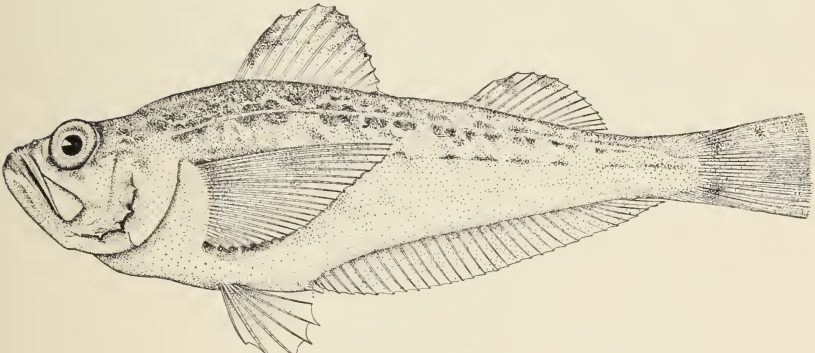
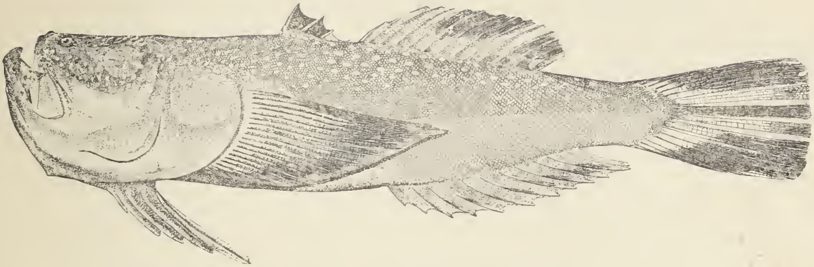


807

805. Hypsicometes gobioides. (P. 2294.)
806. Trichodon trichodon. (P. 2295.)
807. Arctoscopus japonicus. (P. 2297.)



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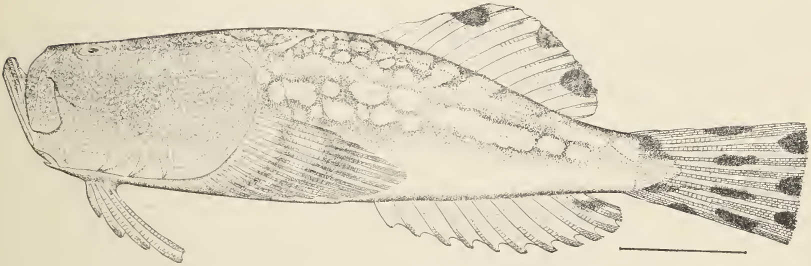

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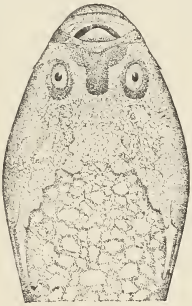
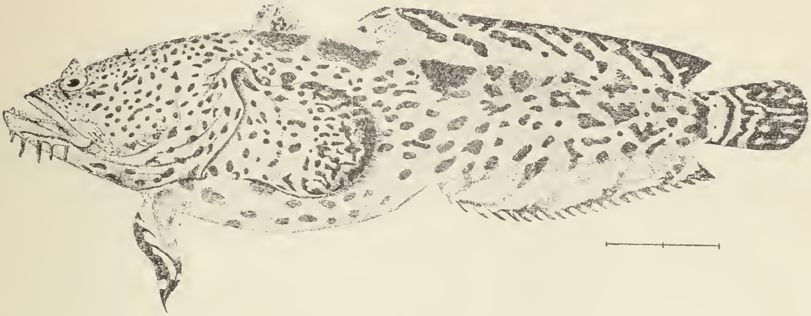


809*a*

808. Astroscopus y-græcum. (P. 2307.)
809, 809*a*. Kathetostoma albigutta. (P. 2312.)



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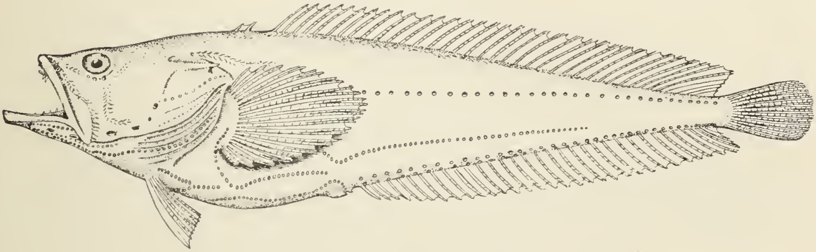

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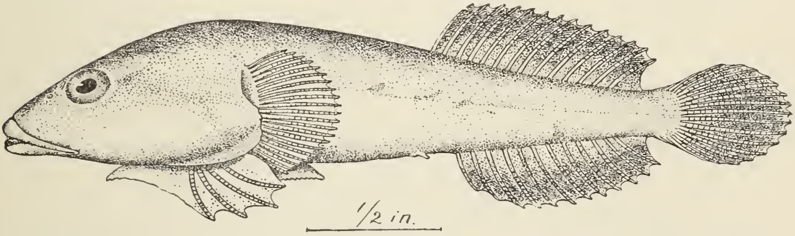

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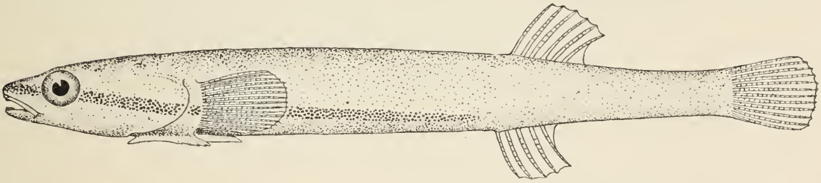
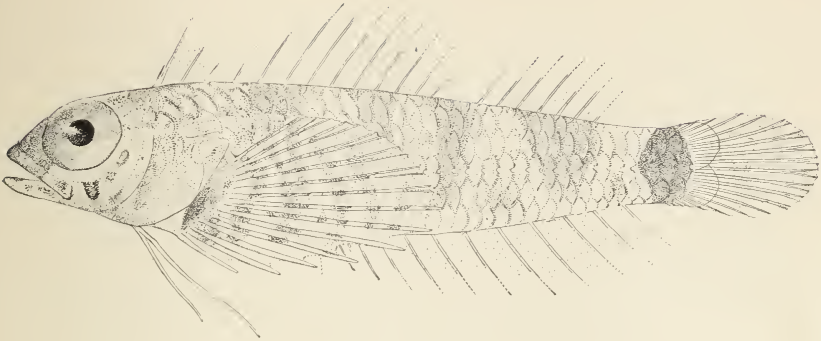


813

810. Opsanus pardus. (P. 2316.)
811. Porichthys porosissimus. (P. 2319.)
812. Caularchus mæandricus. (P. 2328.)
813. Rimicola muscarum. (P. 2338.)



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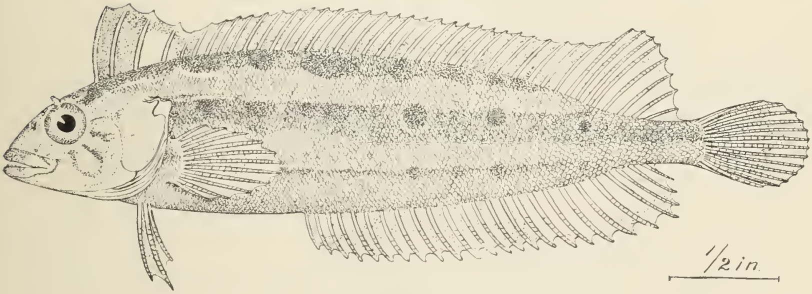

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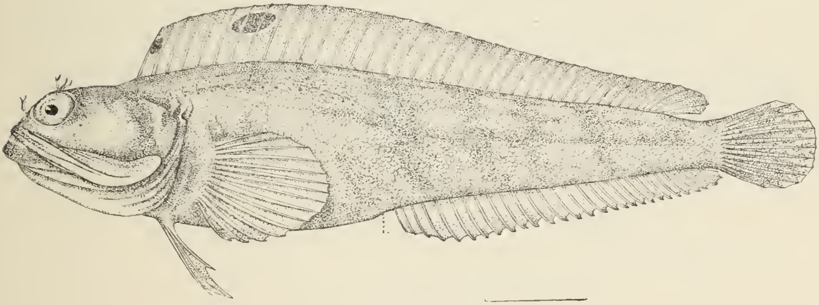
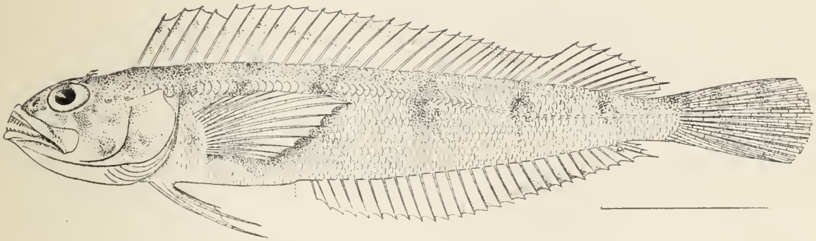


816

814. Enneanectes carminalis. (P. 2350.)
815. Gibbonsia elegans evides. (P. 2352.)
816. Neoclinus satiricus. (P. 2355.)



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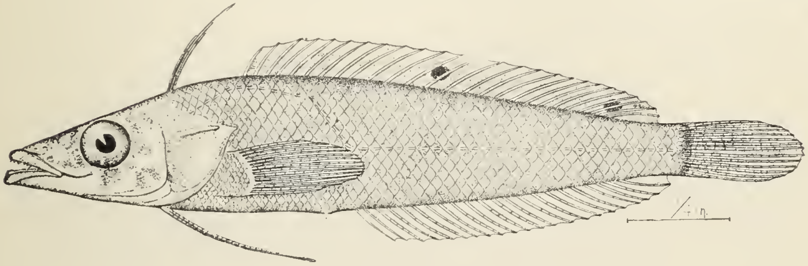

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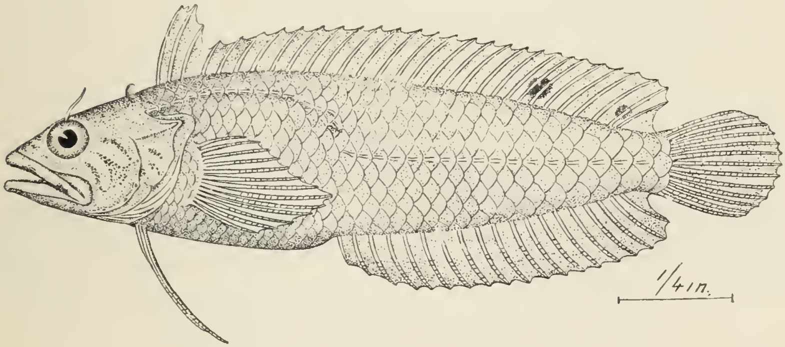
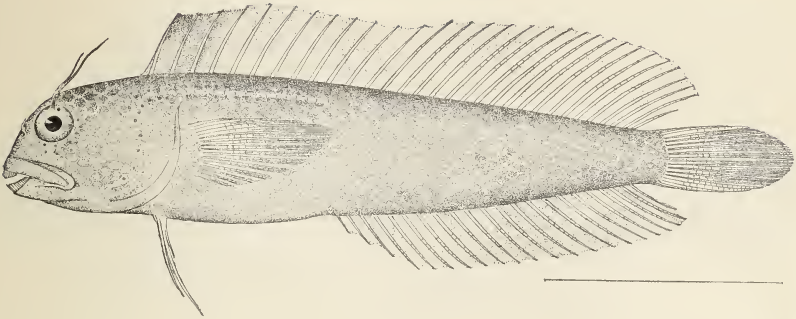


819

817. Cryptotrema corallinum. (P. 2366.)
818. Exerpes asper. (P. 2367.)
819. Auchenopterus nox. (P. 2373.)



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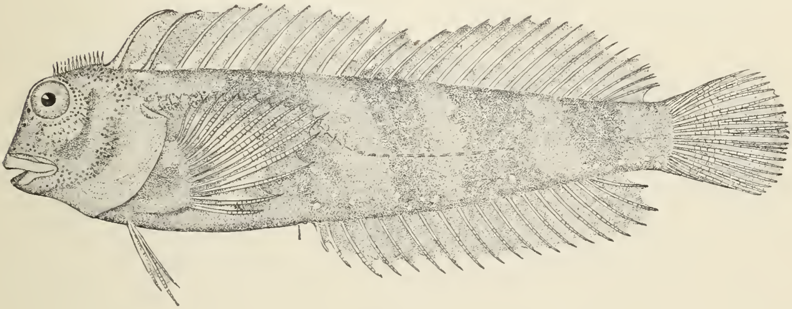

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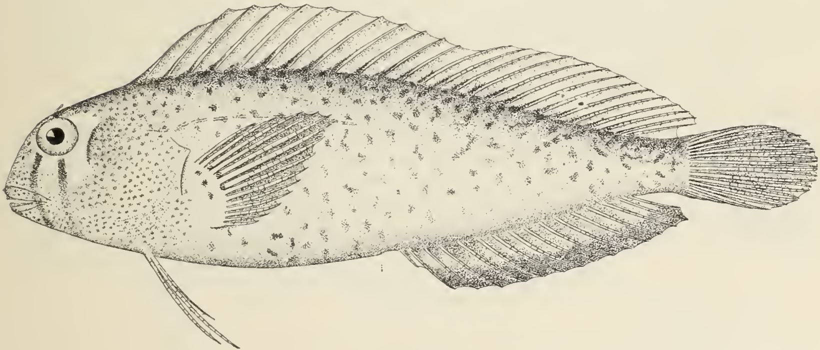
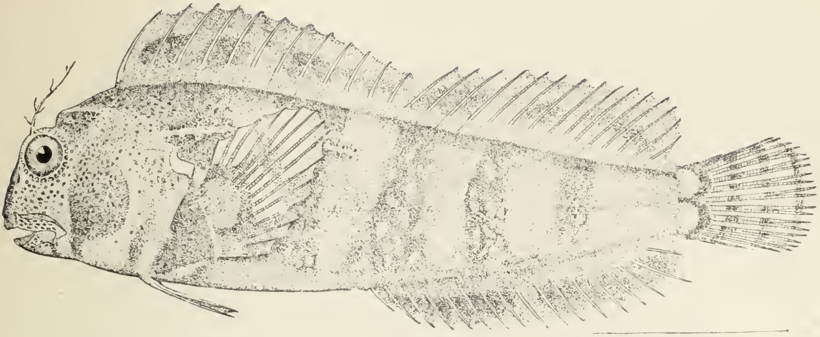


822

820. Blennius favosus. (P. 2380.)
821. Blennius cristatus. (P. 2382.)
822. Hypsoblennius ionthas. (P. 2388.)



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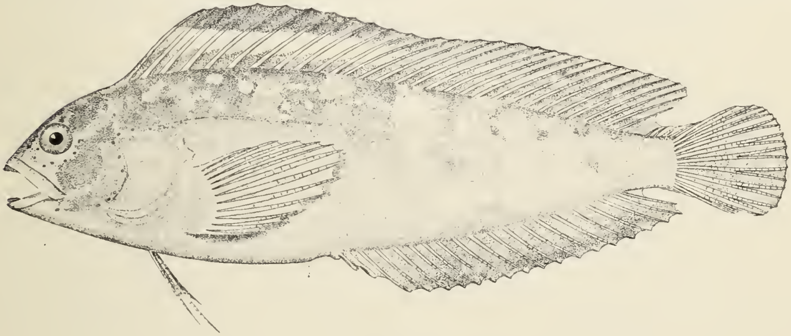

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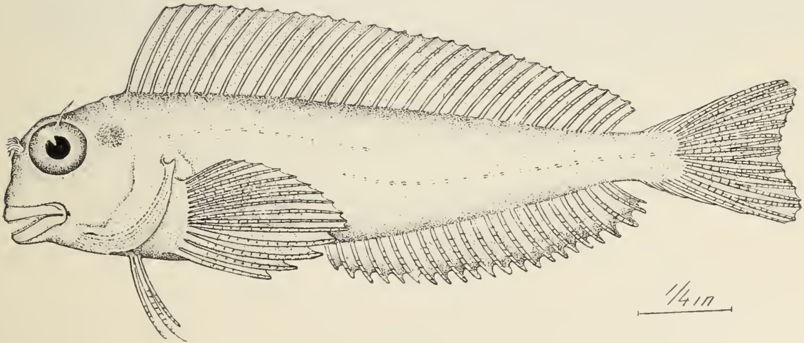
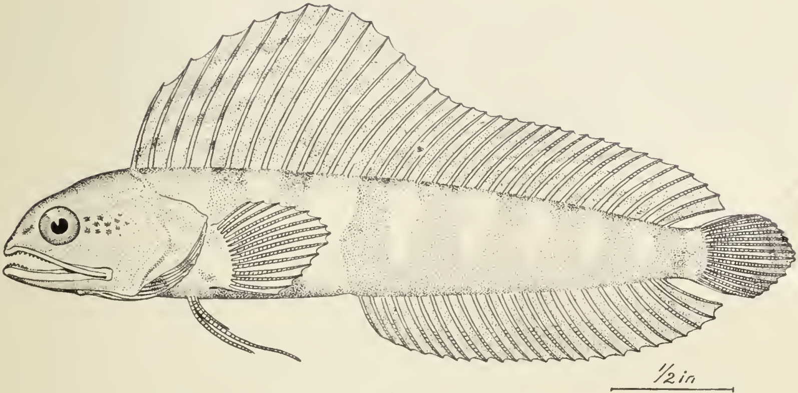


825

823. Hypsoblennius hentz. (P. 2390.)
824. Chasmodes saburræ. (P. 2392.)
825. Rupiscartes atlanticus. (P. 2397.)



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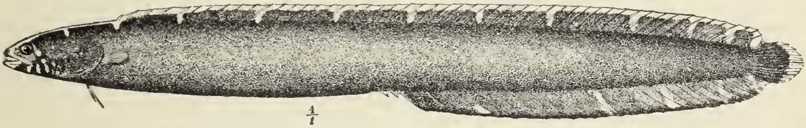
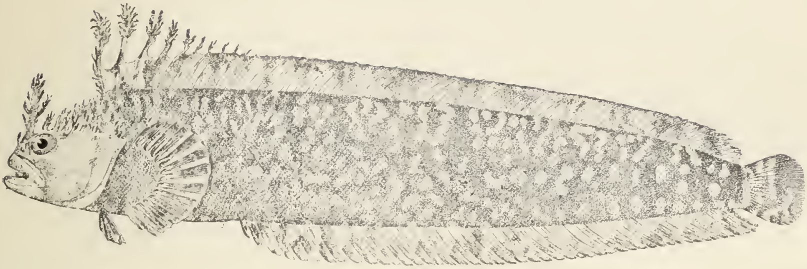


827

826. Emblemaria atlantica. (P. 2402.)
827. Stathmonotus hemphillii. (P. 2407.)



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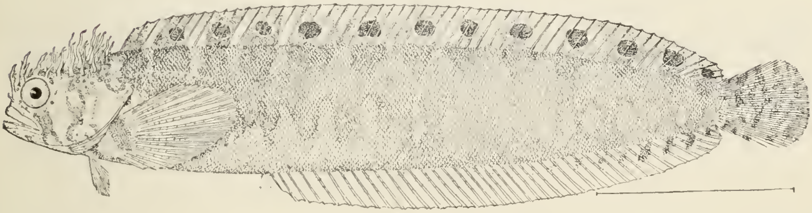

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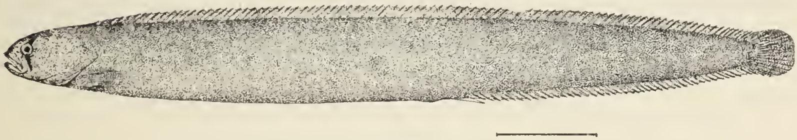
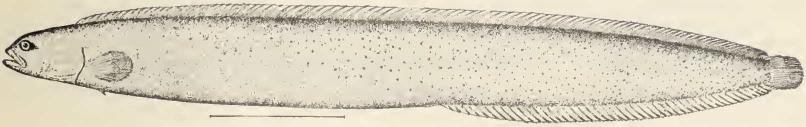


830

828. Bryostema polyactocephalum. (P. 2408.)
829. Bryostema nugator. (P. 2410.)
830. Apodichthys flavidus. (P. 2411.)



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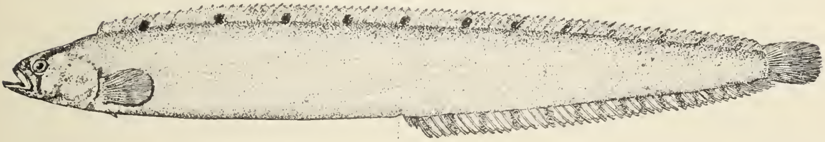

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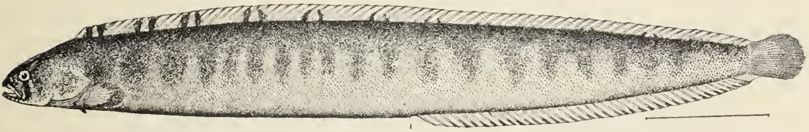
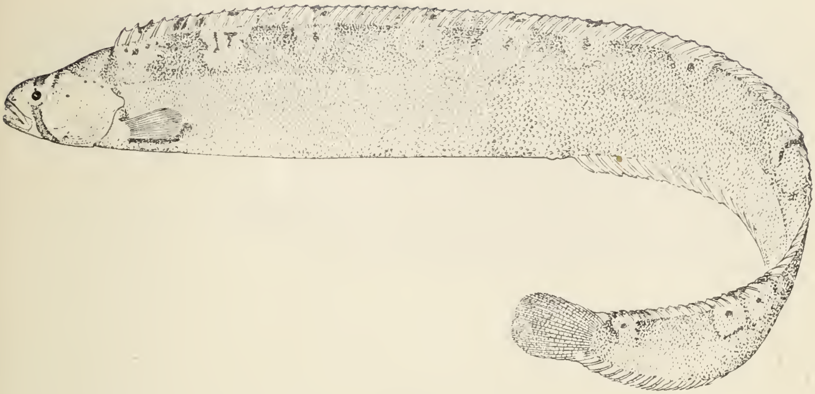


833

831. Pholis dolichogaster. (P. 2416.)
832. Pholis gunnellus. (P. 2419.)
833. Pholis ornatus. (P. 2419.)



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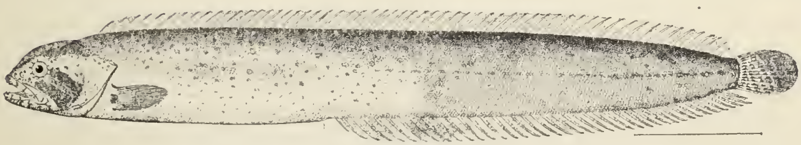

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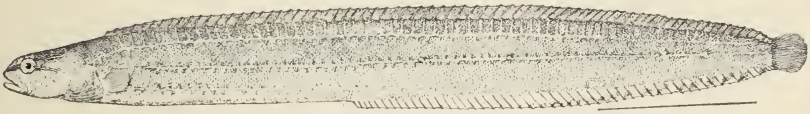
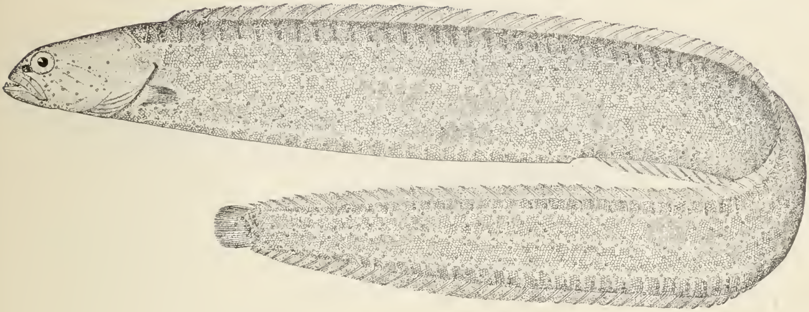


836

834. Asternopteryx gunnelliformis. (P. 2420.)
835. Anoplarchus atropurpureus. (P. 2422.)
836. Xiphistes ulvæ. (P. 2423.)



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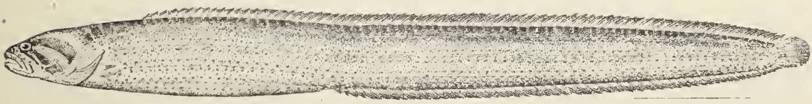

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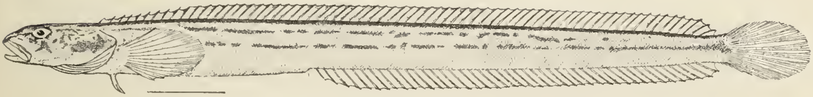

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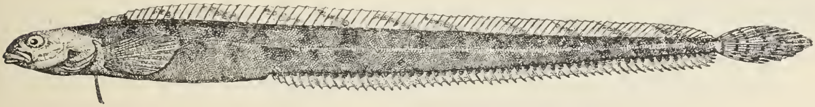
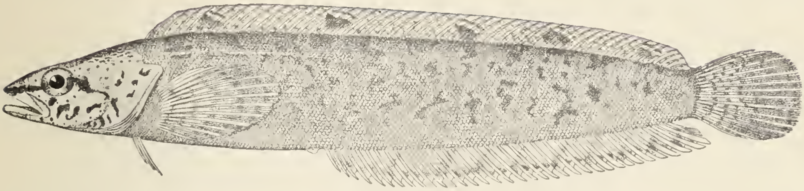


840

837. Xiphistes chirus. (P. 2424.)
838. Xiphidion rupestre. (P. 2426.)
839. Lumpenus mackayi. (P. 2436.)
840. Lumpenus lampetræformis. (P. 2438.)



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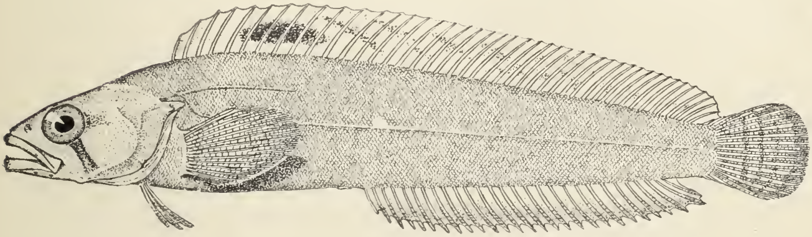

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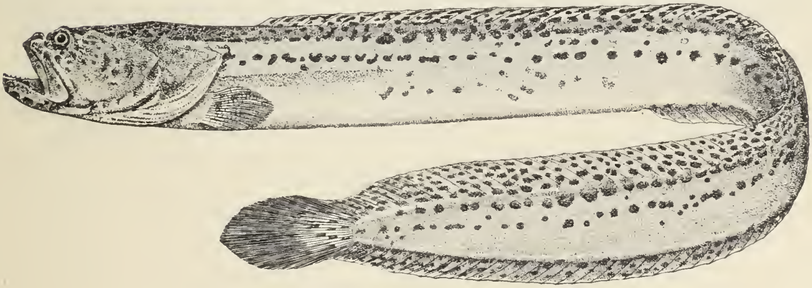
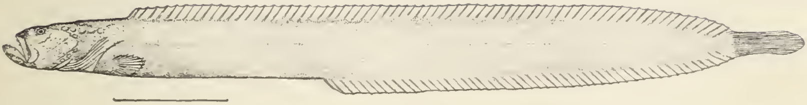


843

841. Stichæus punctatus. (P. 2439.)
842. Ulvaria subbifurcata. (P. 2440.)
843. Cryptacanthodes maculatus. (P. 2443.)



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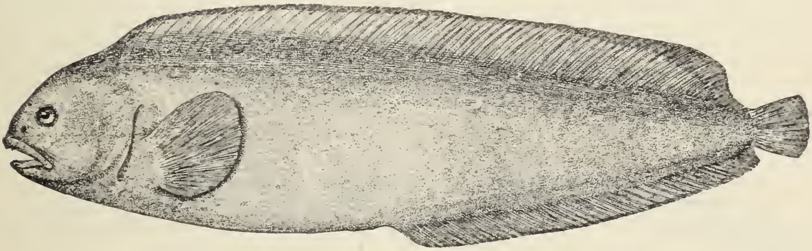
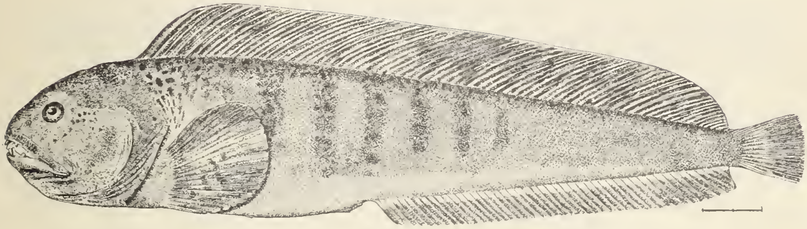


845

844. Lyconectes aleutensis. (P. 2444.)
845. Anarhichas latifrons. (P. 2446.)



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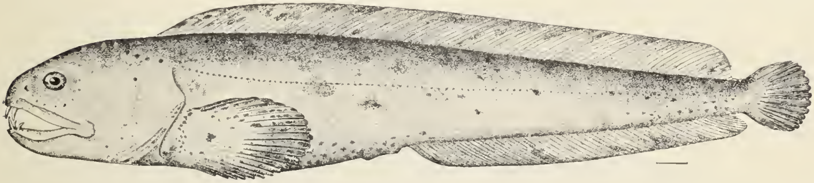

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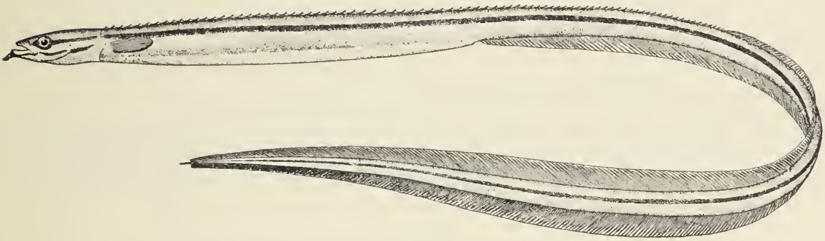
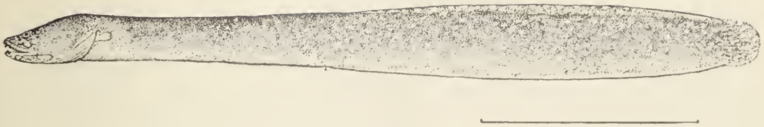


848

846. Anarhichas lupus. (P. 2446.)
847. Anarhichas lepturus. (P. 2447.)
848. Ptilichthys goodei. (P. 2452.)



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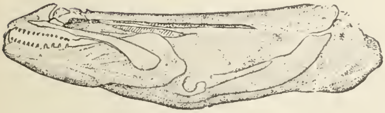

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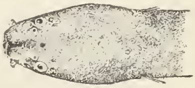
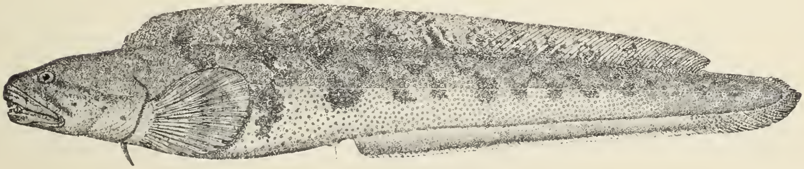


849*b*



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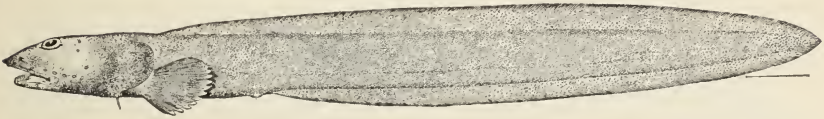
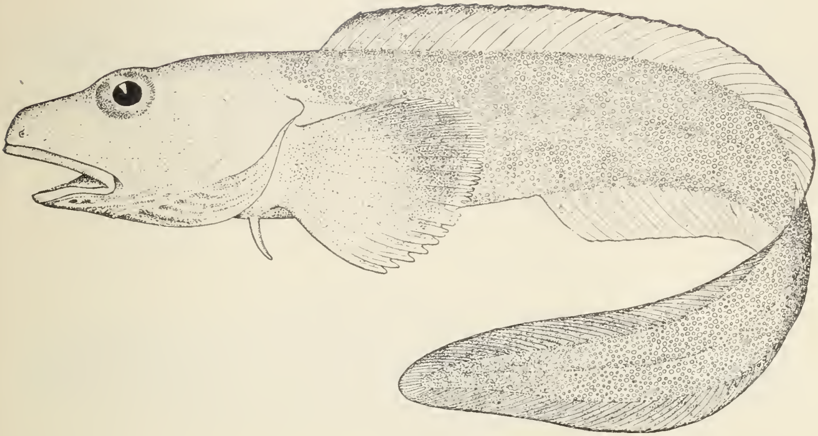


851

849, 849*a*, 849*b*. Scytalina cerdale. (P. 2454.)
850. Zoarces anguillaris. (P. 2457.)
851. Embryx crotalinus. (P. 2458.)



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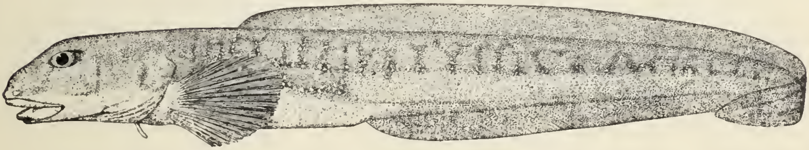

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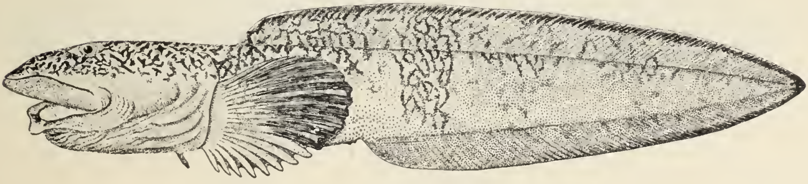
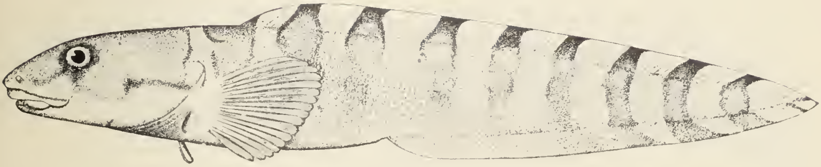


854

852. Aprodon cortezianus. (P. 2461.)
853. Lycodes zoarchus. (P. 2464.)
854. Lycodes reticulatus. (P. 2465.)



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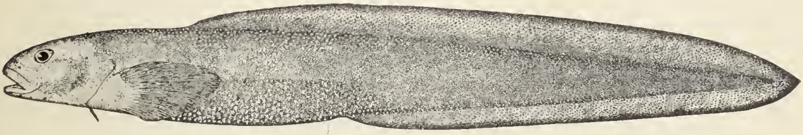

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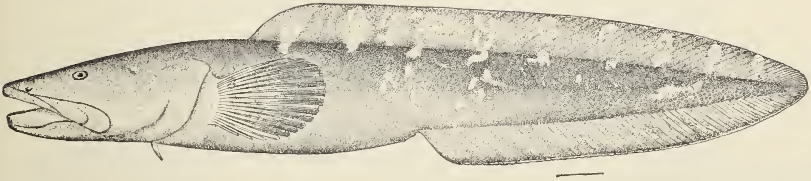

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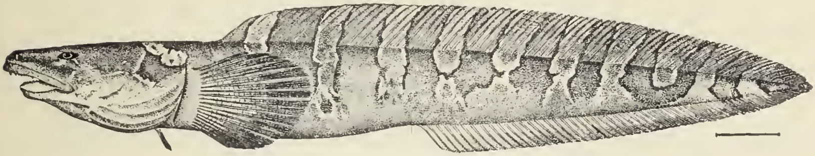
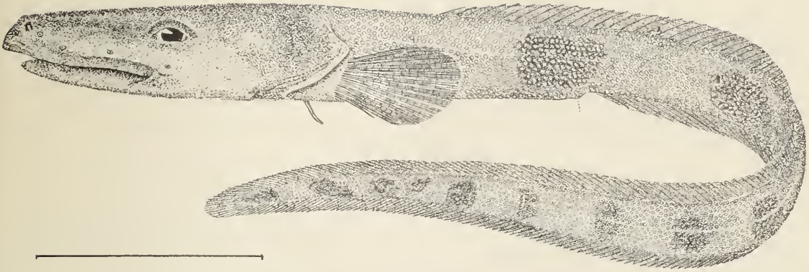


858

855. Lycodes perspicillum. (P. 2465.)
856. Lycodes frigidus. (P. 2465.)
857. Lycodalepis polaris. (P. 2468.)
858. Lycodalepis turneri. (P. 2468.)



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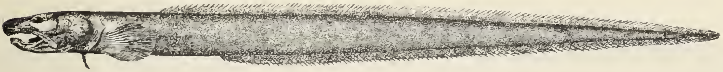

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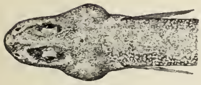

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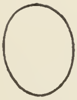
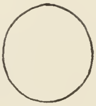
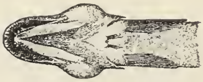


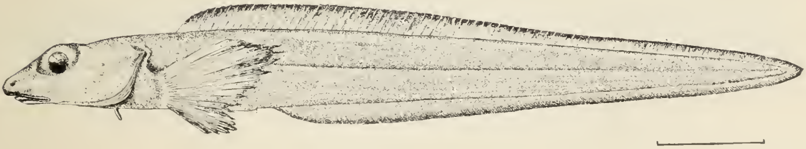
860*c*



860*d*

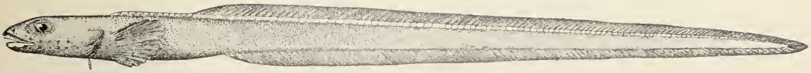


860*b*



861

859. LYCENCHELYS VERRILLII. (P. 2470.)
860, 860*a*, 860*b*, 860*c*, 860*d*. LYCENCHELYS PAXILLUS. (P. 2471.)
861. FURCIMANUS DIAPTERUS. (P. 2472.)



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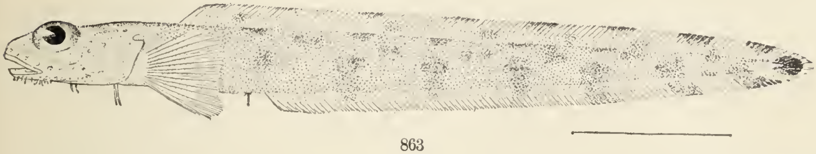

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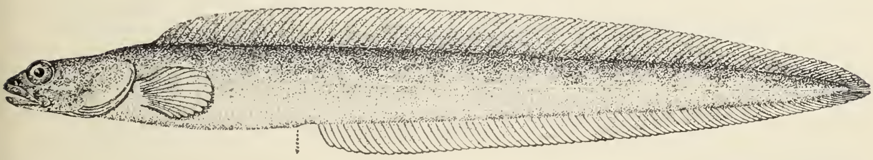

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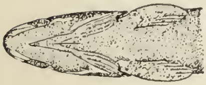
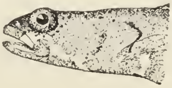
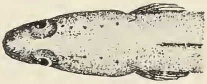


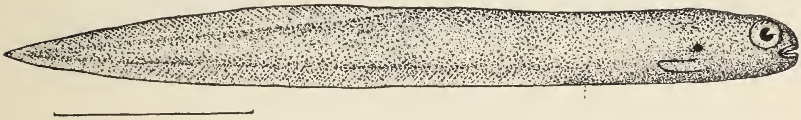
864*a*



864*b*

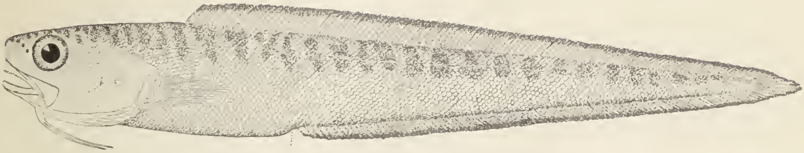


864*c*



865

862. Lycodonus mirabilis. (P. 2474.)
863. Lyconema barbatum. (P. 2474.)
864, 864*a*, 864*b*, 864*c*. Gymnelis viridis. (P. 2477.)
865. Melanostigma pammelas. (P. 2479.)



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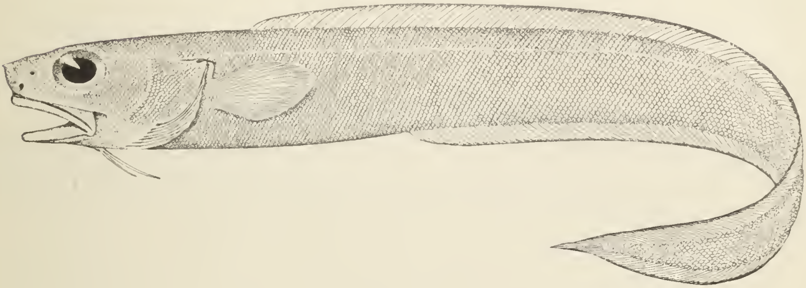

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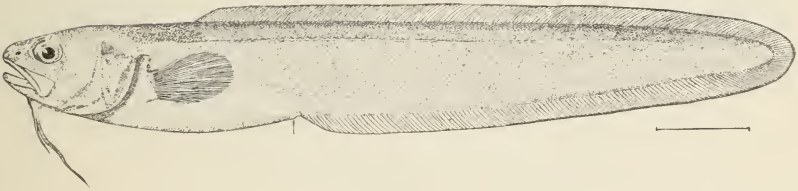
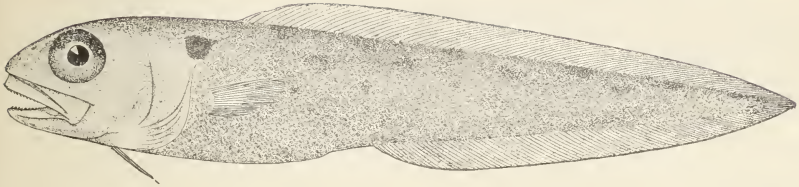


868

866. Lepophidium marmoratum. (P. 2482.)
867. Lepophidium profundorum. (P. 2484.)
868. Rissola marginata. (P. 2489.)



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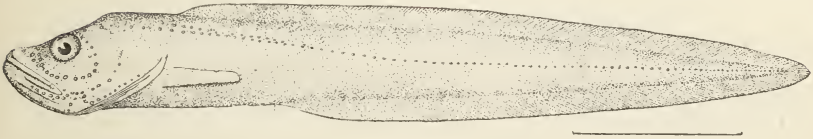

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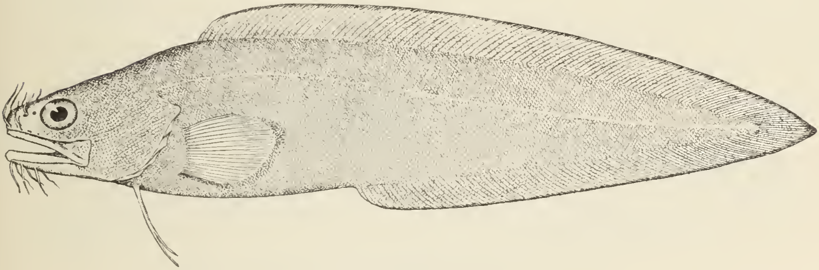
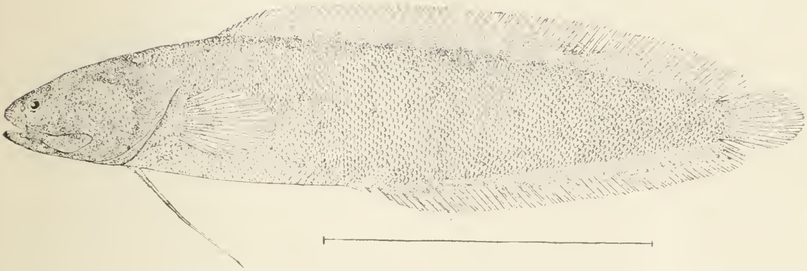


871

869. OTOPHIDIUM OMOSTIGMUM. (P. 2490.)
870. LYCODAPUS DERMATINUS. (P. 2492.)
871. BROTULA BARBATA. (P. 2500.)



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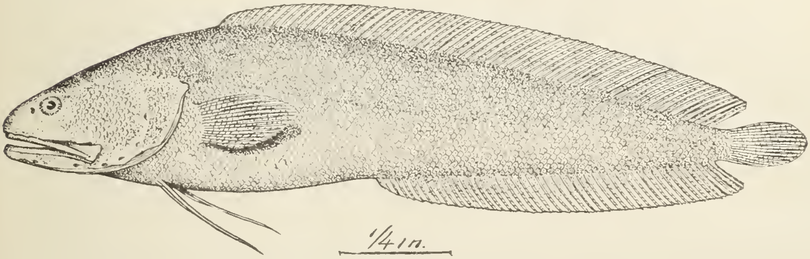

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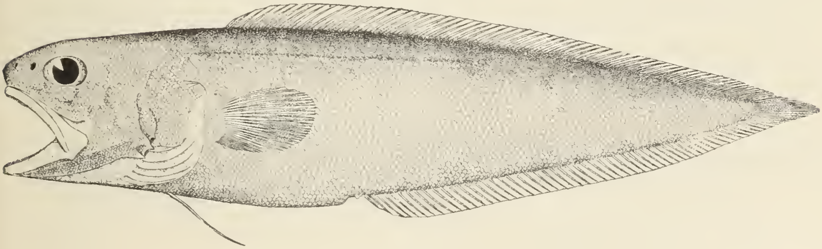
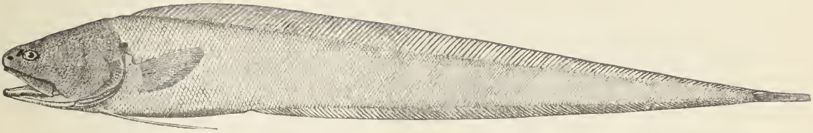


874

872. Ogilbia ventralis. (P. 2503.)
873. Ogilbia cayorum. (P. 2503.)
874. Dicromita agassizii. (P. 2506.)



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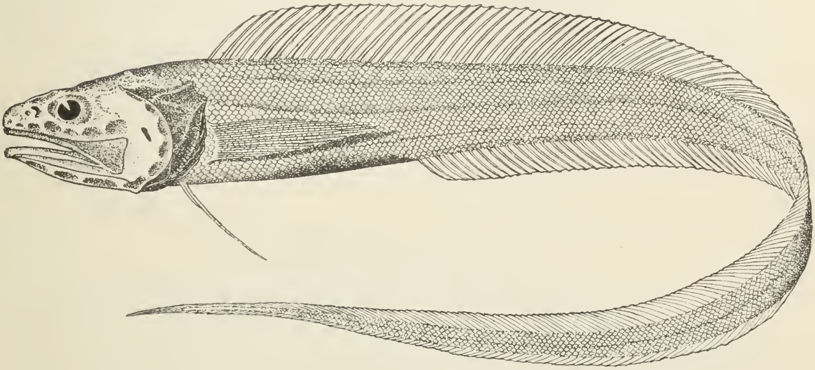

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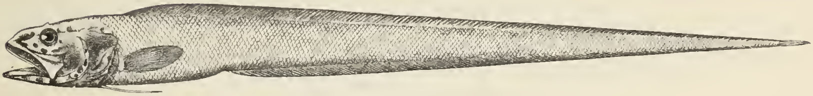
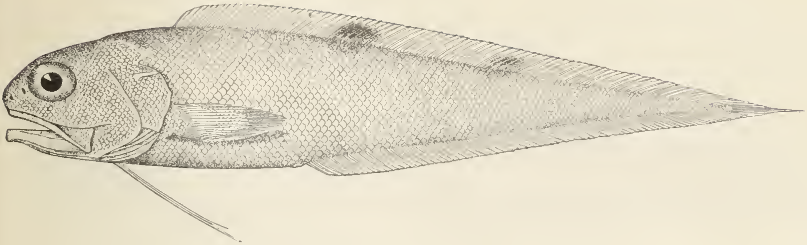


876*a*

875. Bassozetus normalis. (P. 2507.)
876, 876*a*. Bassozetus catena. (P. 2509.)



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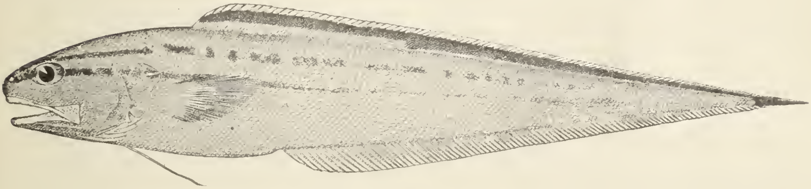

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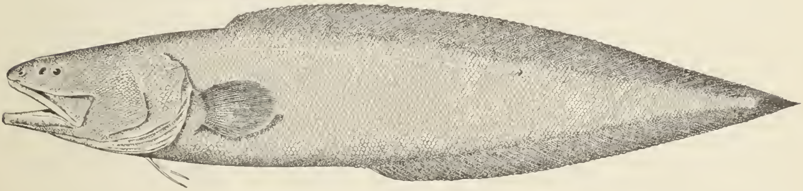

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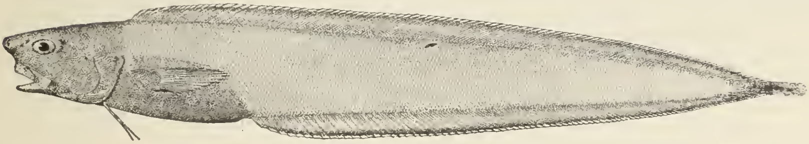
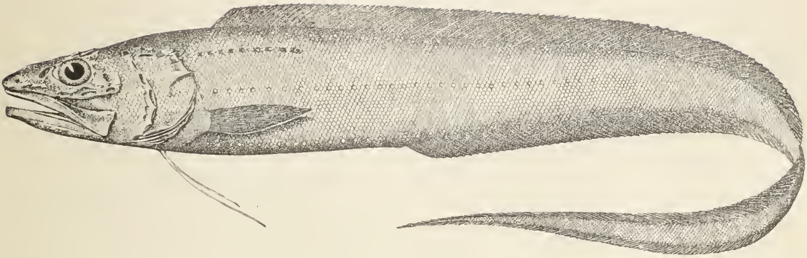


880

877. Neobythites gillii. (P. 2512.)
878. Neobythites marginatus. (P. 2513.)
879. Bassogigas gillii. (P. 2515.)
880. Barathrodemus manatinus. (P. 2517.)



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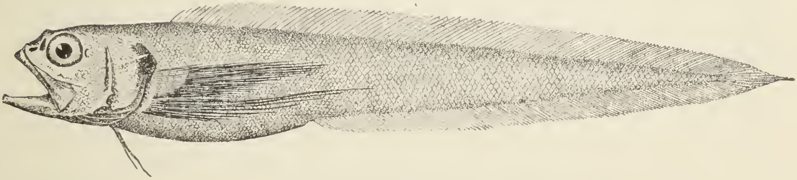

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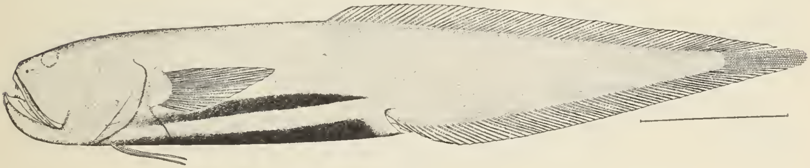
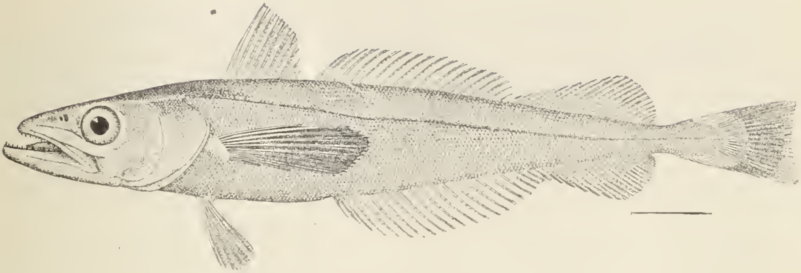


883

881. Porogadus miles. (P. 2520.)
882. Dicrolene intronigra. (P. 2522.)
883. Barathronus bicolor. (P. 2524.)



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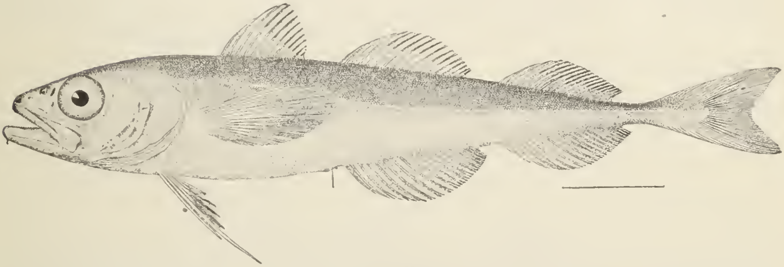

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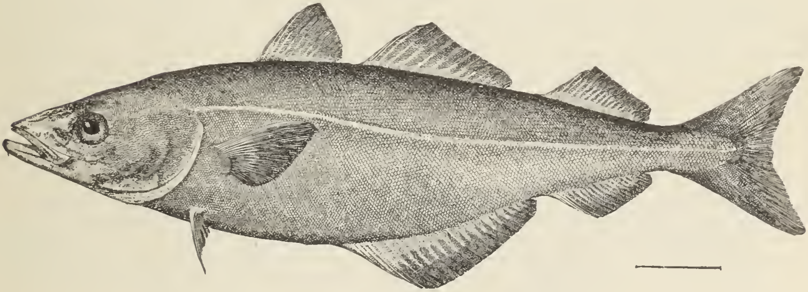
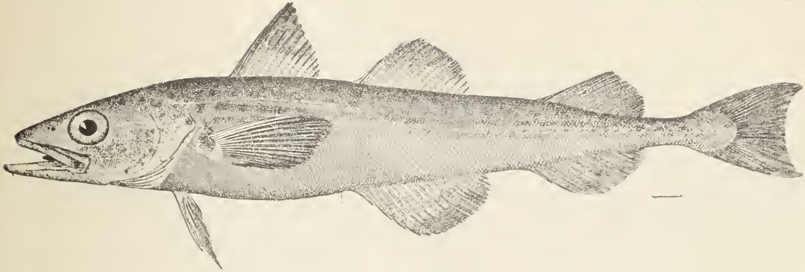


886

884. Merluccius productus. (P. 2531.)
885. Borogadus saida. (P. 2533.)
886. Pollachius virens. (P. 2534.)



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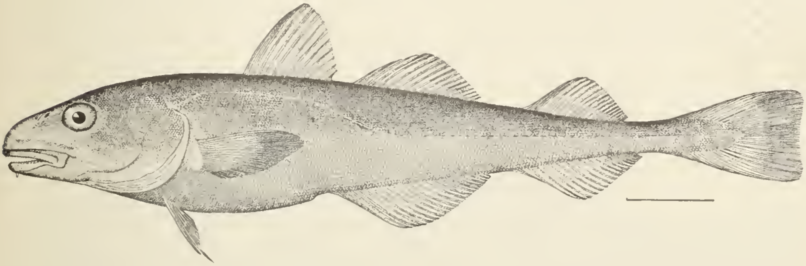

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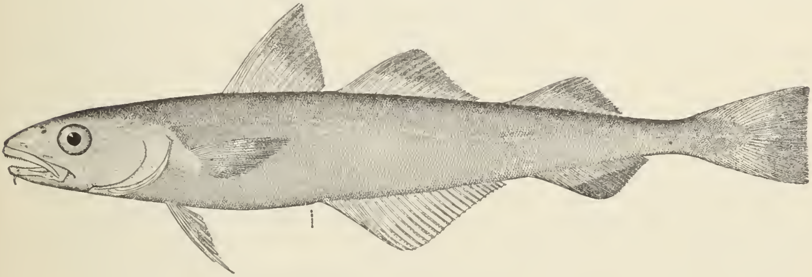

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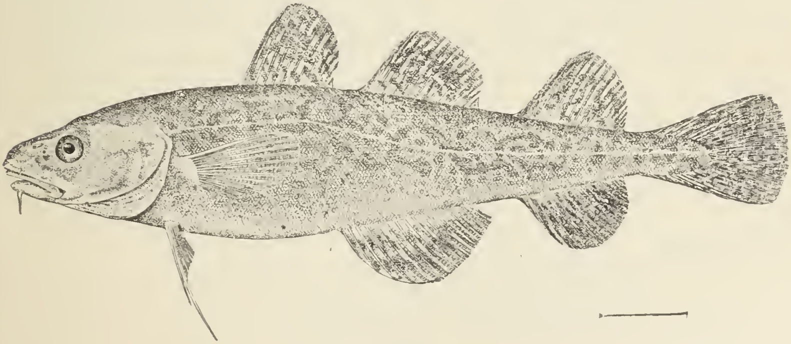
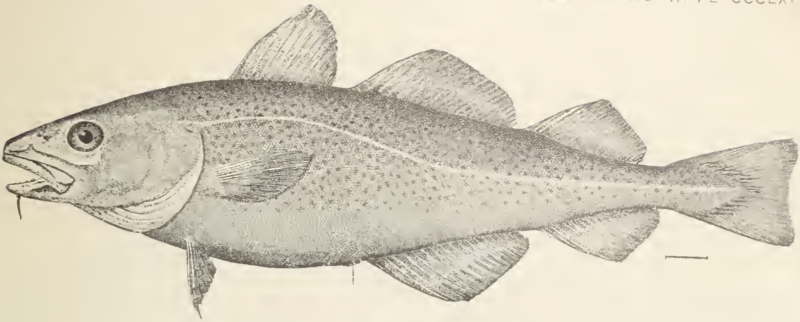


890

887. THERAGRA CHALCOGRAMMA. (P. 2535.)
888. ELEGINUS NAVAGA. (P. 2537.)
889. MICROGADUS PROXIMUS. (P. 2539.)
890. MICROGADUS TOMCOD. (P. 2540.)



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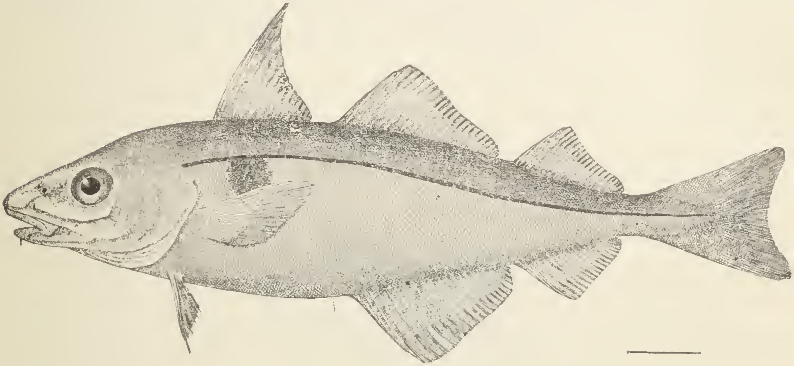

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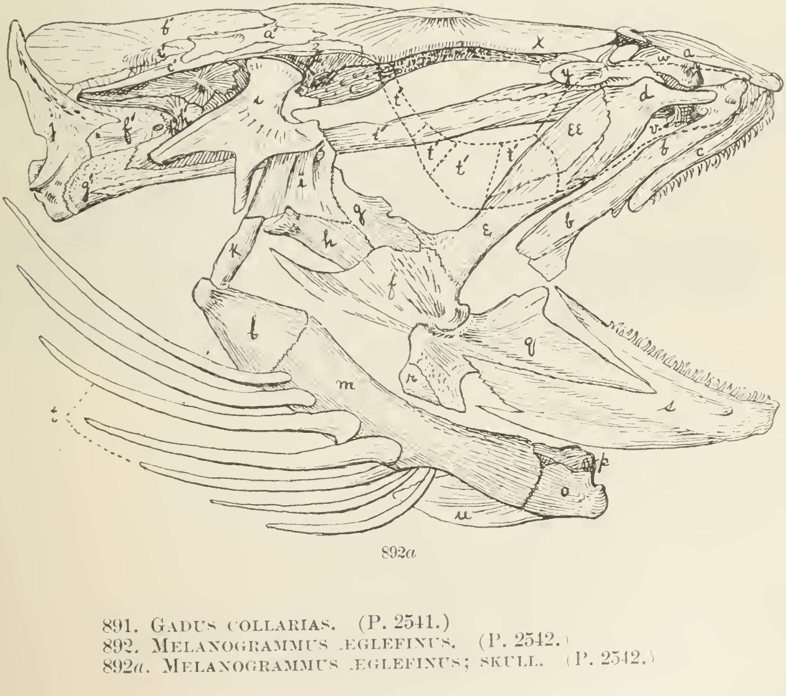
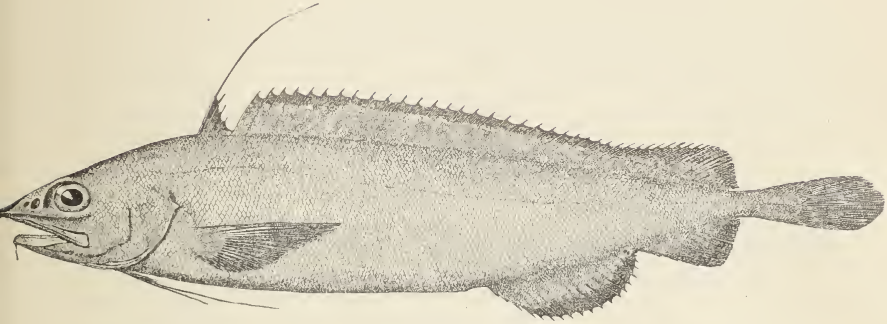


892*a*

891. Gadus collarias. (P. 2541.)
892. Melanogrammus æglefinus. (P. 2542.)
892*a*. Melanogrammus æglefinus; skull. (P. 2542.)



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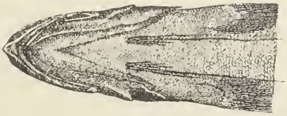
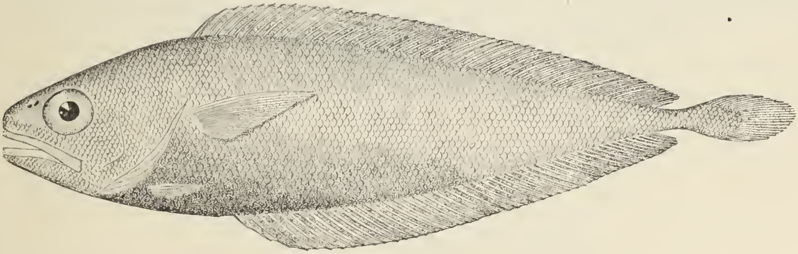


893*a*



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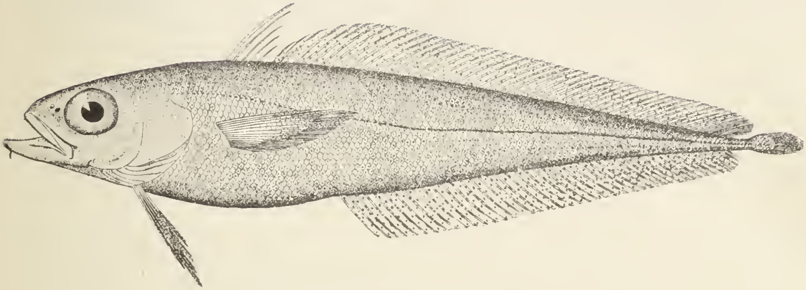
893, 893*a*. ANTIMORA VIOLA. (P. 2544.)
894. URALEPTUS MALARDI. (P. 2545.)



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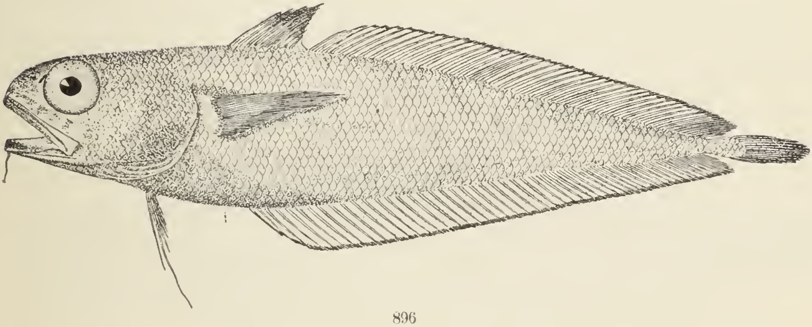
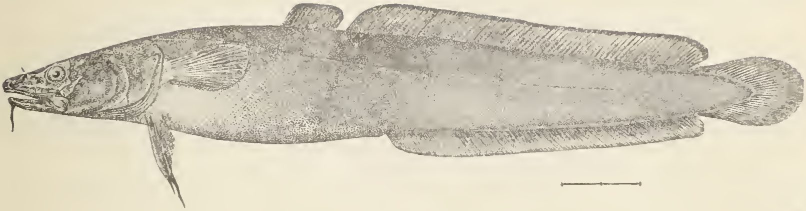


896

895. Lotella maxillaris. (P. 2546.)
896. Physiculus fulvus. (P. 2547.)



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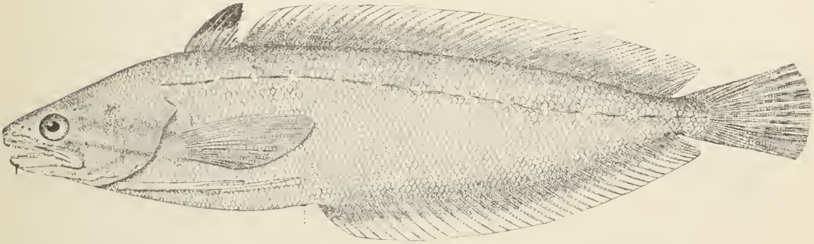

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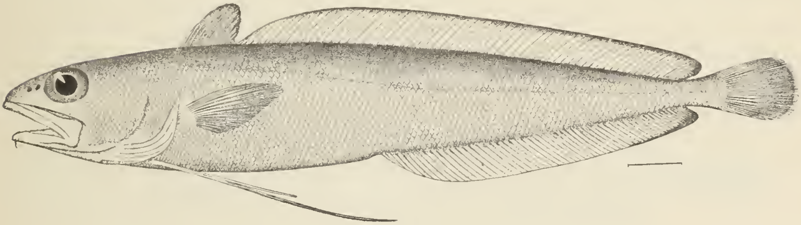
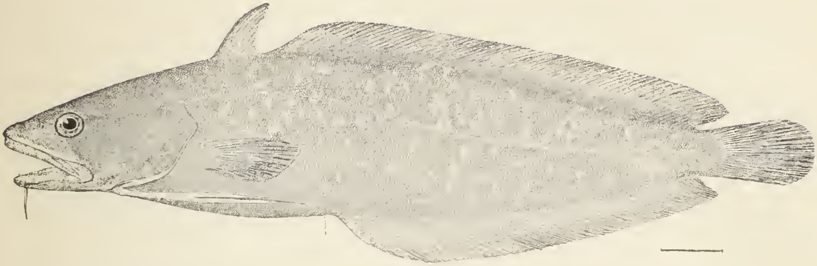


899

897. Lota maculosa. (P. 2550.)
898. Urophycis regius. (P. 2553.)
899. Urophycis cirratus. (P. 2553.)



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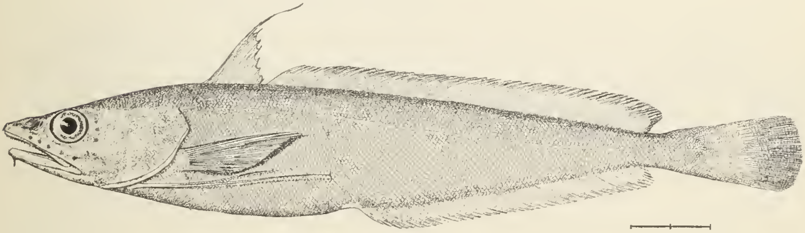

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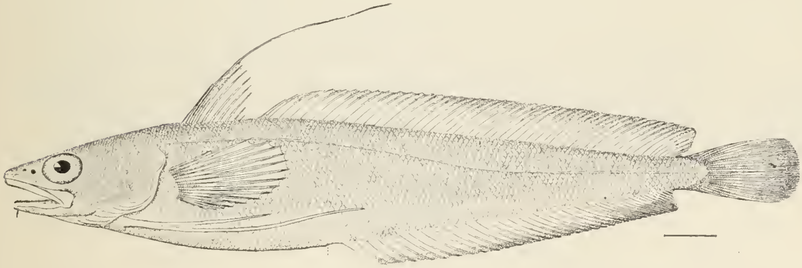
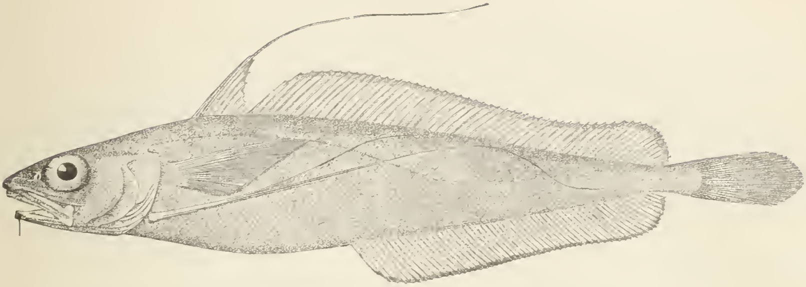


902

900. Urophycis earlli. (P. 2554.)
901. Urophycis tenuis. (P. 2555.)
902. Urophycis chuss. (P. 2555.)



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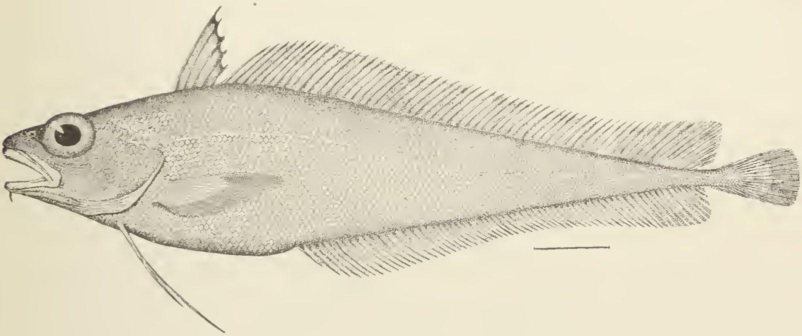

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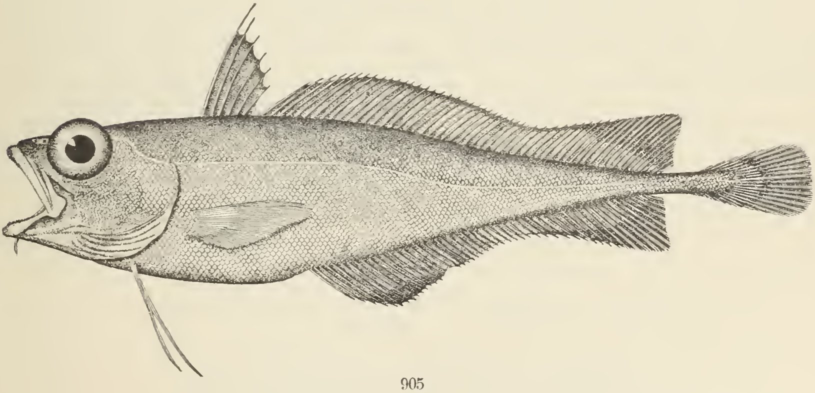
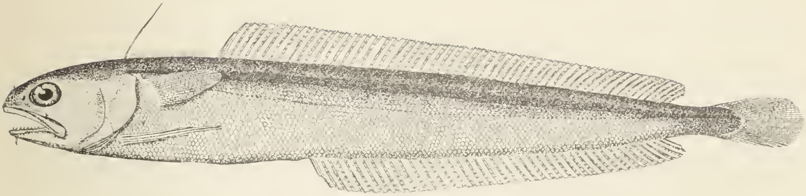


905

903. Urophycis chesteri. (P. 2556.)
904. Lemonema barbatulum. (P. 2556.)
905. Lemonema melanurum. (P. 2557.)



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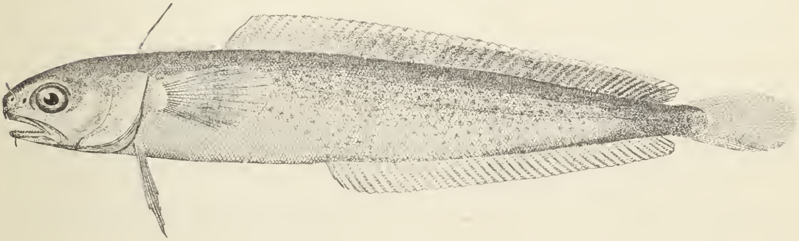

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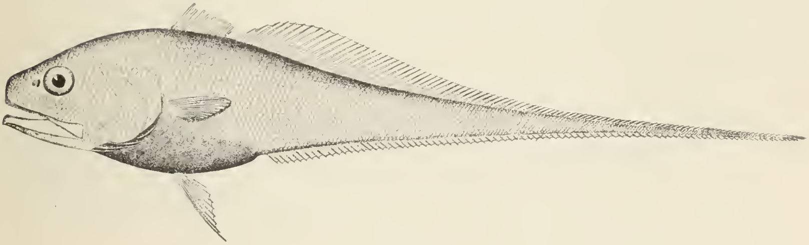
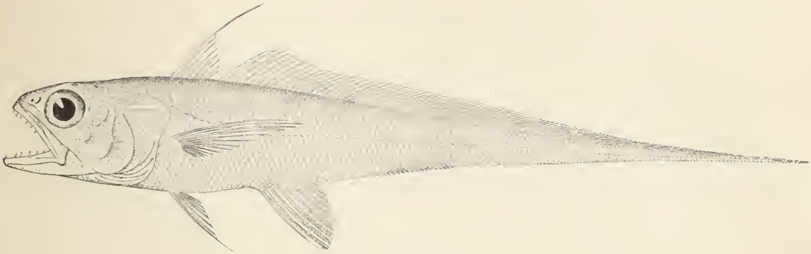


908

906. Gairdropsarus argentatus. (P. 2559.)
907. Enchelyopus cimbrius. (P. 2560.)
908. Bathygadus favosus. (P. 2565.)



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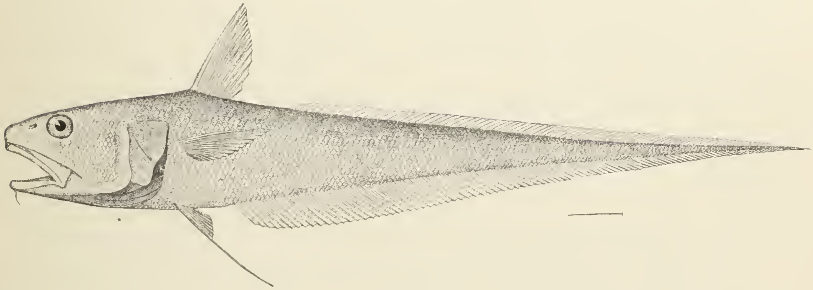

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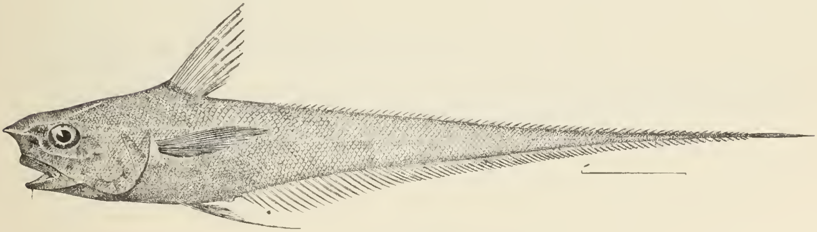
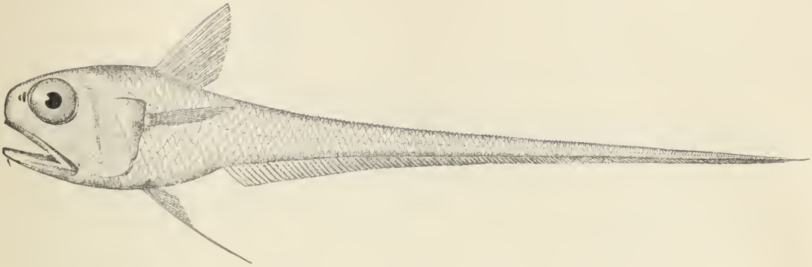


911

909. Steindachneria argentea. (P. 2568.)
910. Chalinura simula. (P. 2578.)
911. Coryphænoides carapinus. (P. 2579.)



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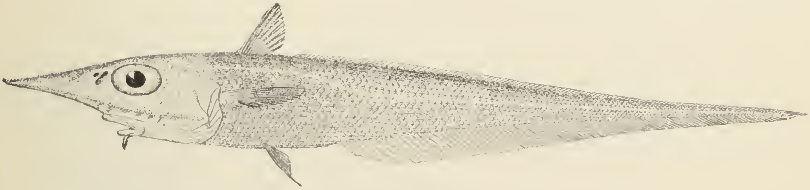

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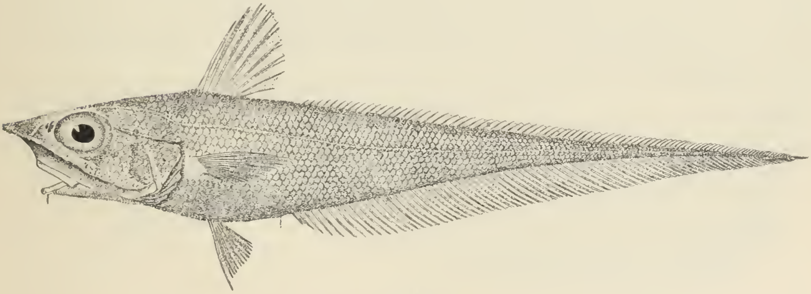
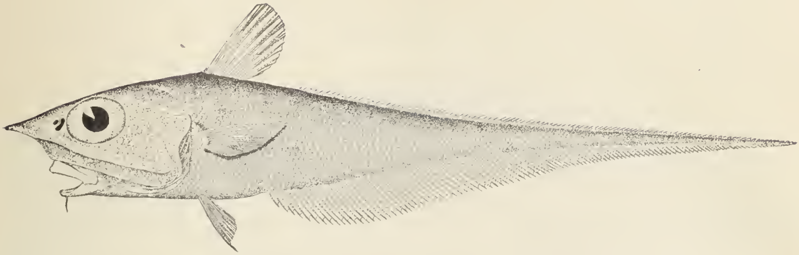


914

912. Hymenocephalus cavernosus. (P. 2580.)
913. Cœlorhynchus occa. (P. 2588.)
914. Cœlorhynchus carminatus. (P. 2588.)



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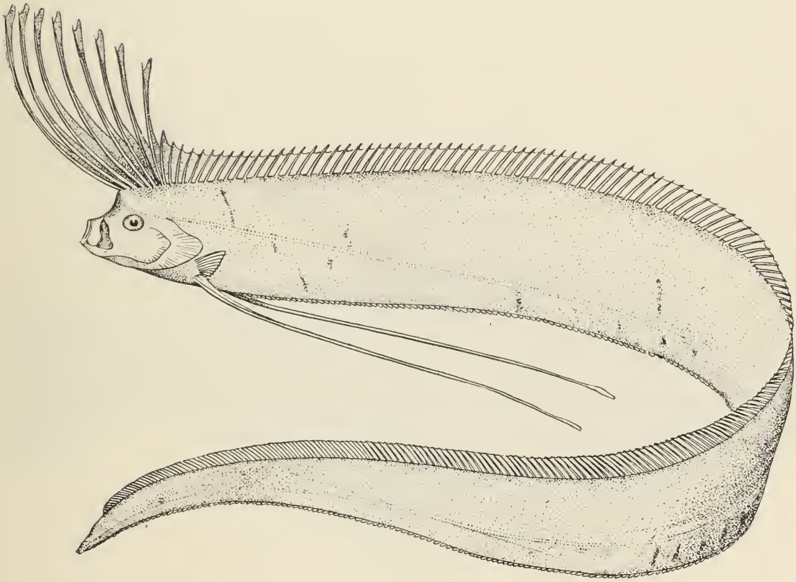
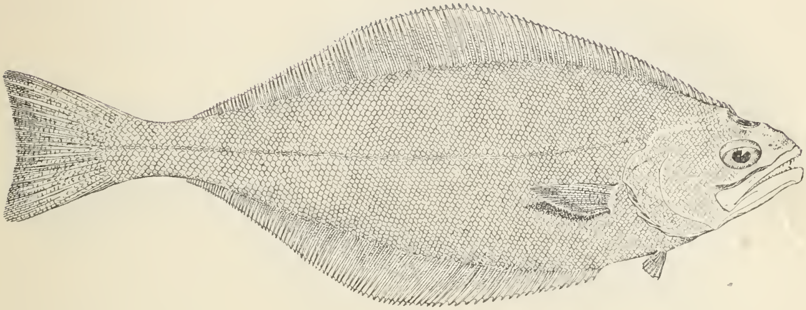


916

915. Cœlorhynchus caribbæus. (P. 2589.)
916. Regalecus glesne. (P. 2596.)



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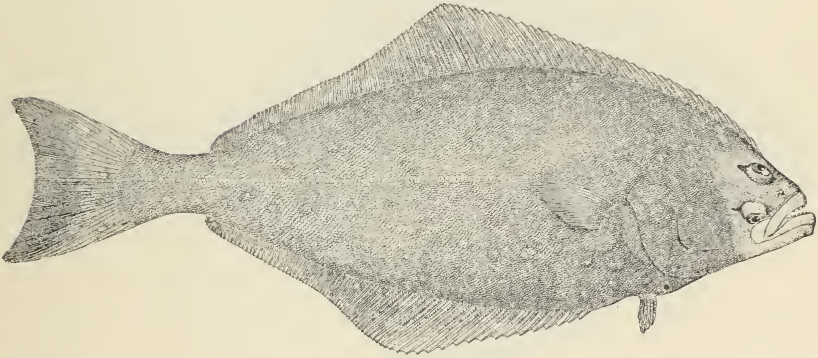

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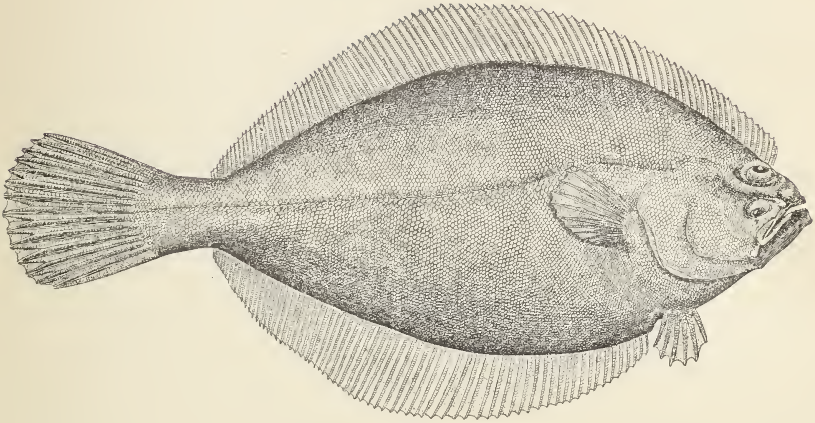
917. Atheresthes stomias. (P. 2609.)
918. Hippoglossus hippoglossus. (P. 2611.)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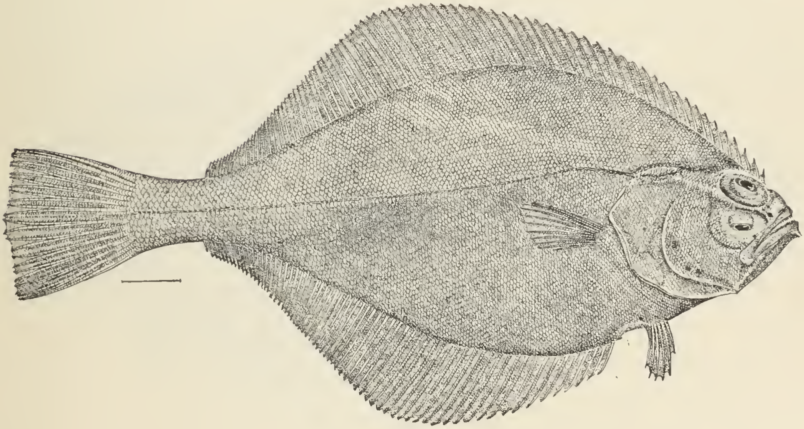
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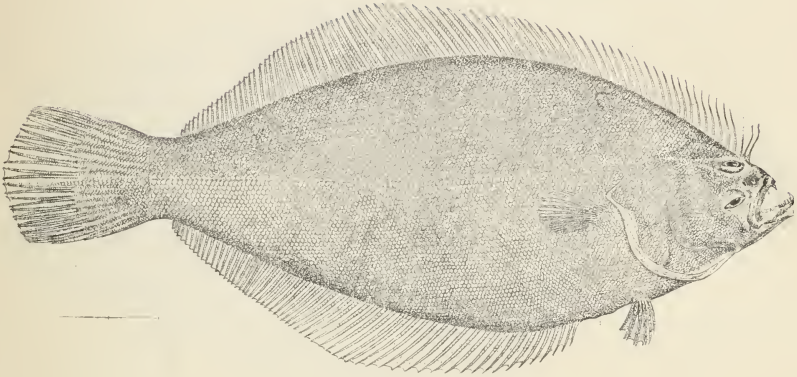
919. Hippoglossoides platessoides. (P. 2614.)
920. Hippoglossoides elassodon. (P. 2615.)



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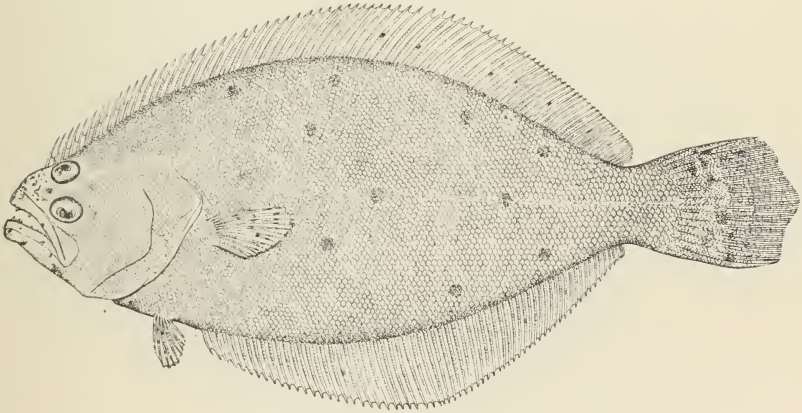

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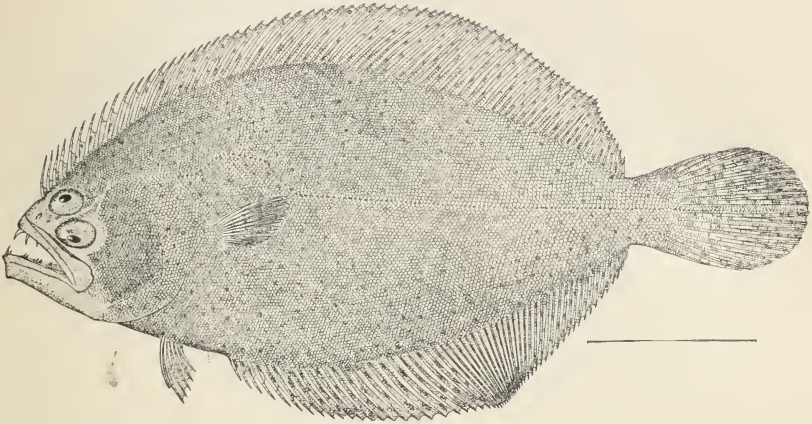
921. Psettichthys melanostictus. (P. 2618.)
922. Paralichthys dentatus. (P. 2629.)



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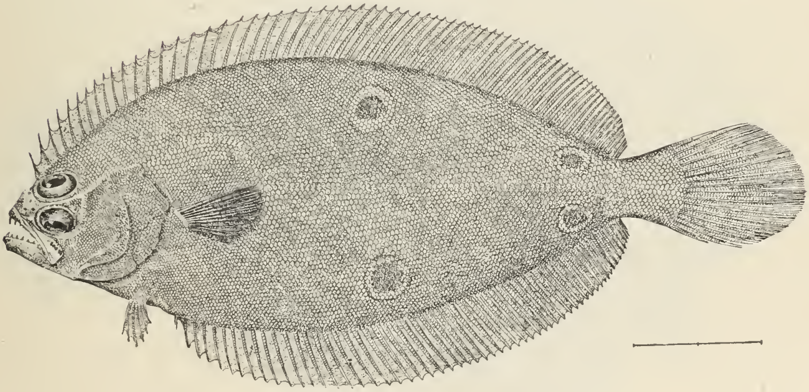

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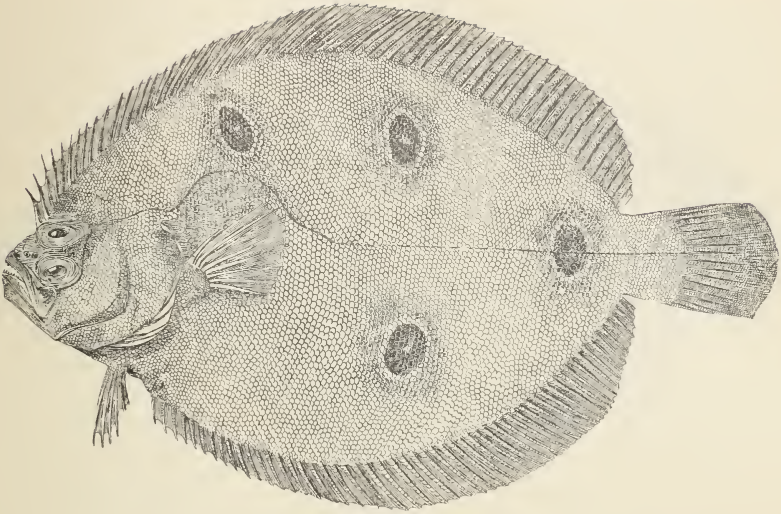
923. PARALICHTHYS SQUAMILENTUS. (P. 2631.)
924. PARALICHTHYS OBLONGUS. (P. 2632.)



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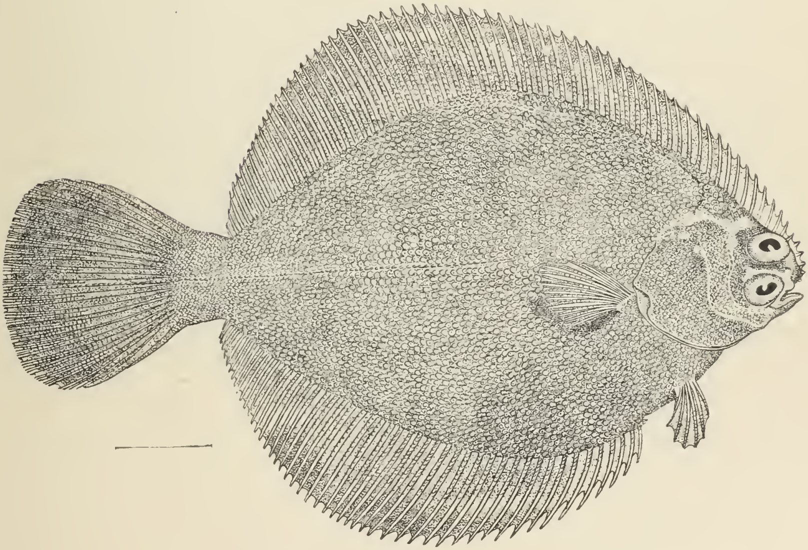

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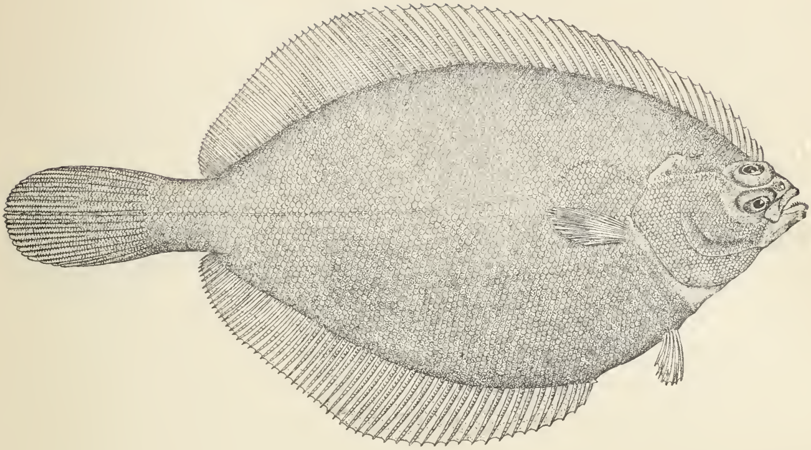
925. Ancylopsetta quadrocellata. (P. 2634.)
926. Pleuronichthys decurrens. (P. 2637.)



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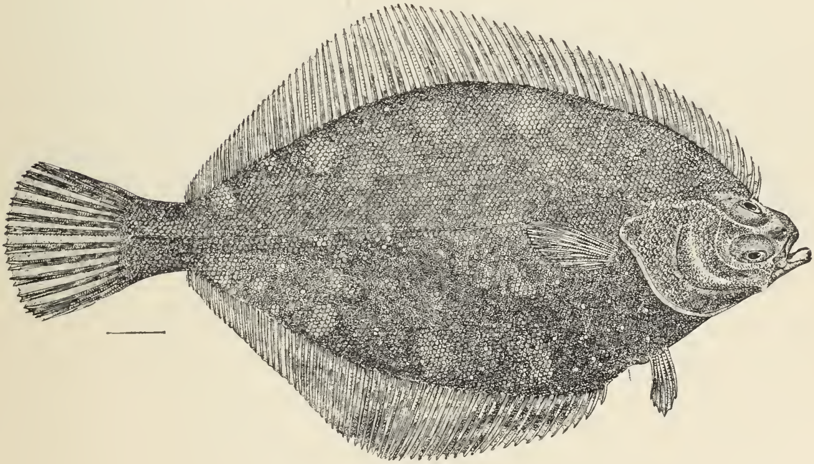

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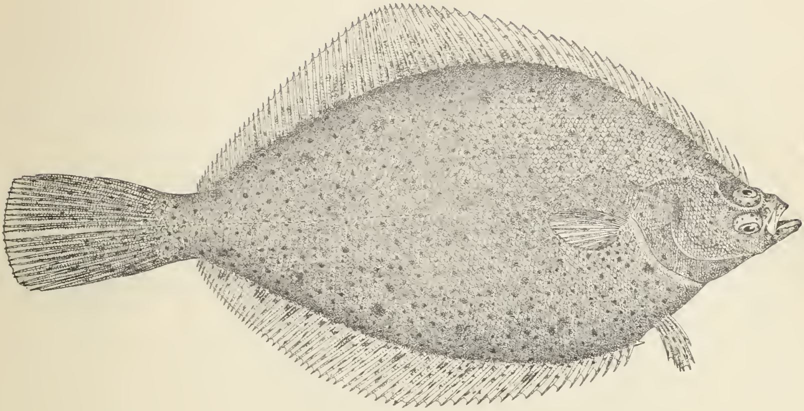
927. Inopsetta ischyra. (P. 2641.)
928. Lepidopsetta bilineata. (P. 2643.)



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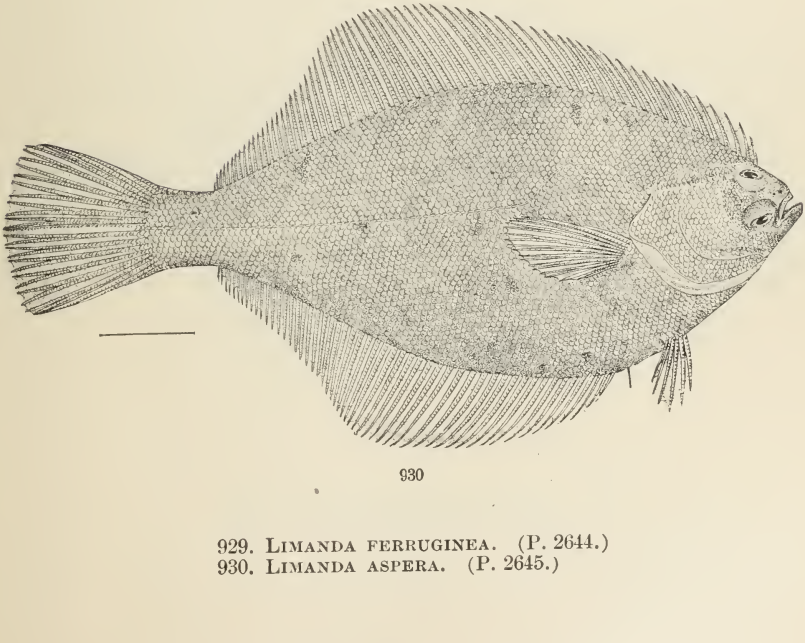
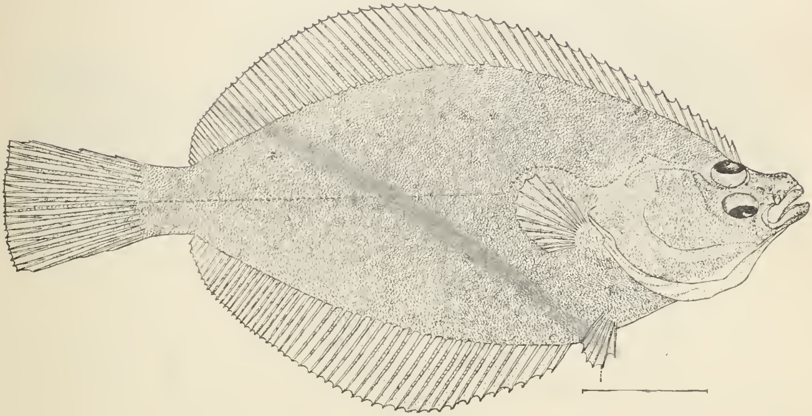


930

929. Limanda ferruginea. (P. 2644.)
930. Limanda aspera. (P. 2645.)



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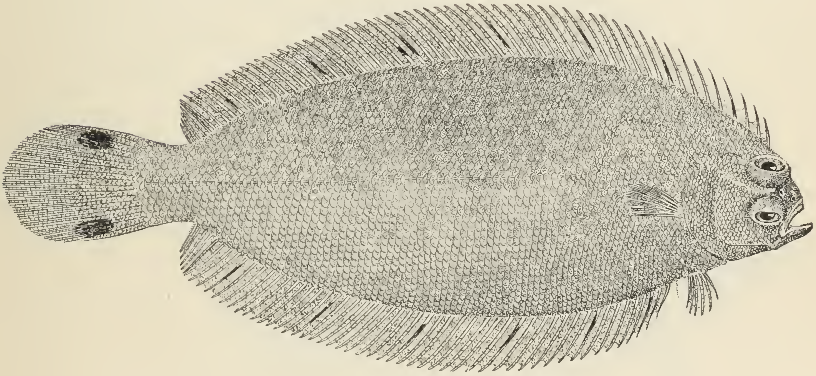

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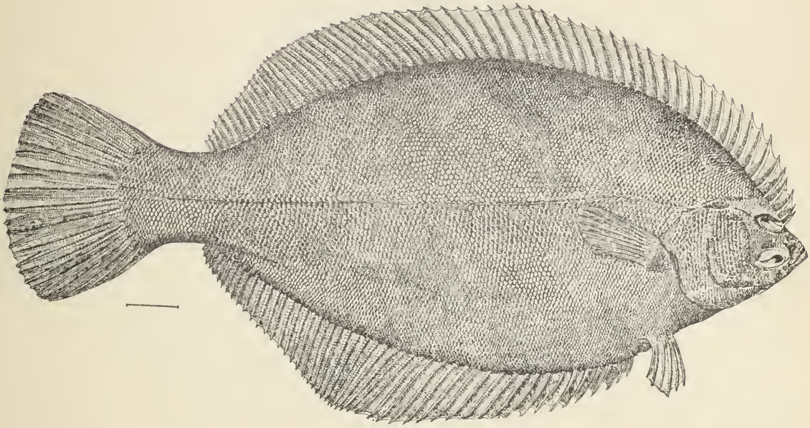
931. Limanda proboscidea. (P. 2645.)
932. Limanda beanii. (P. 2646.)



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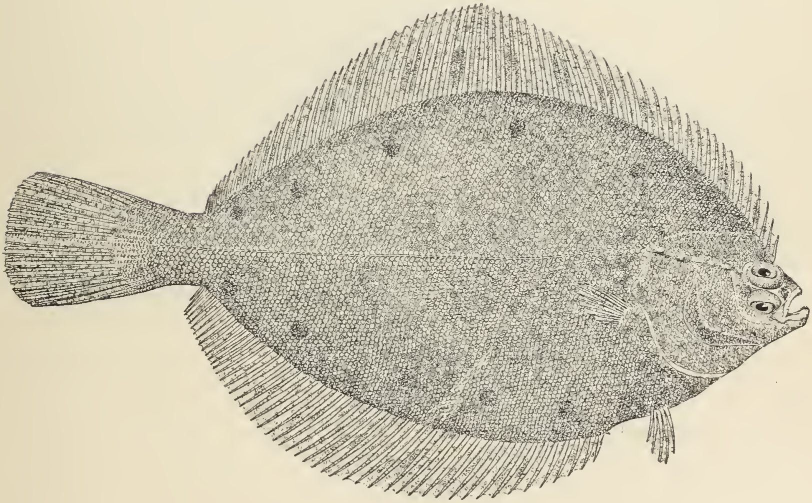

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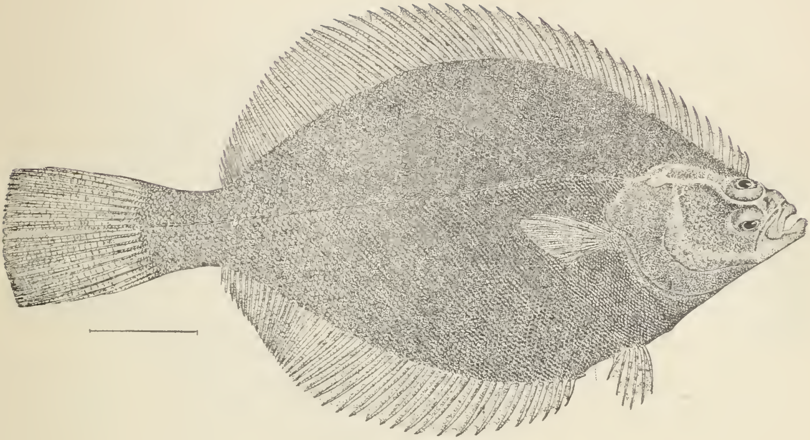
933. Pseudopleuronectes americanus. (P. 2647.)
934. Pleuronectes quadrituberculatus. (P. 2648.)



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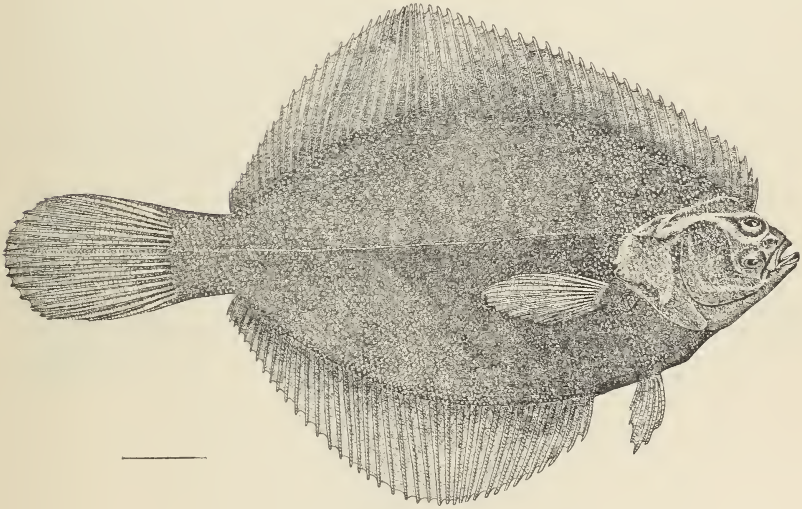

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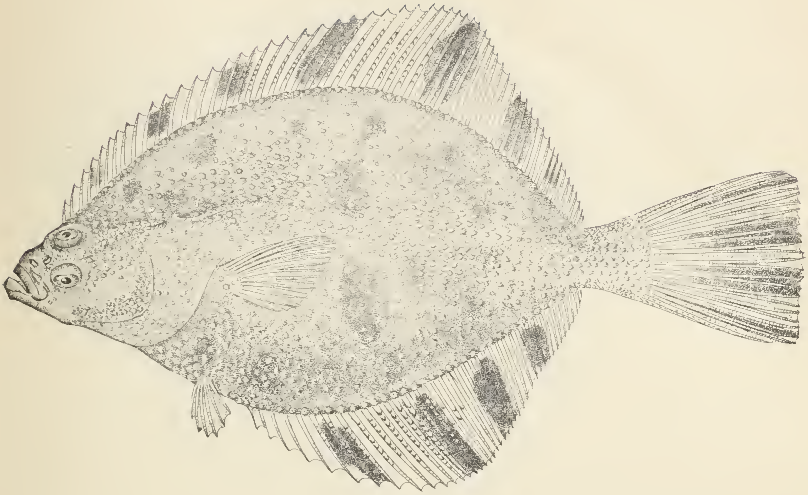
935. Liopsetta glacialis. (P. 2649.)
936. Liopsetta putnami. (P. 2650.)



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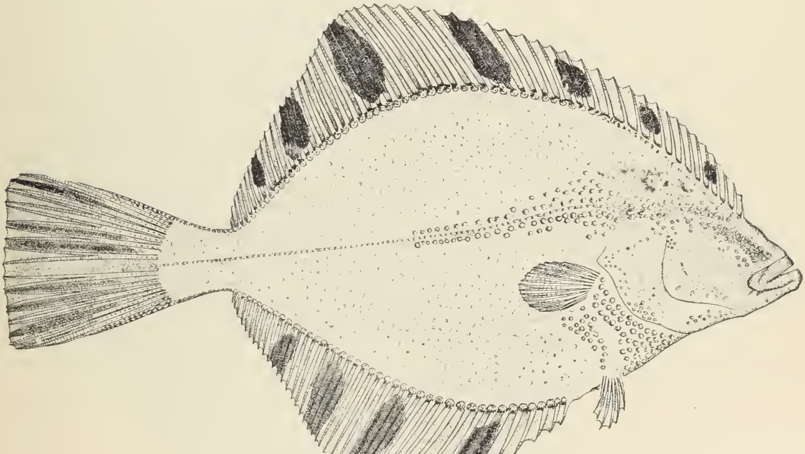
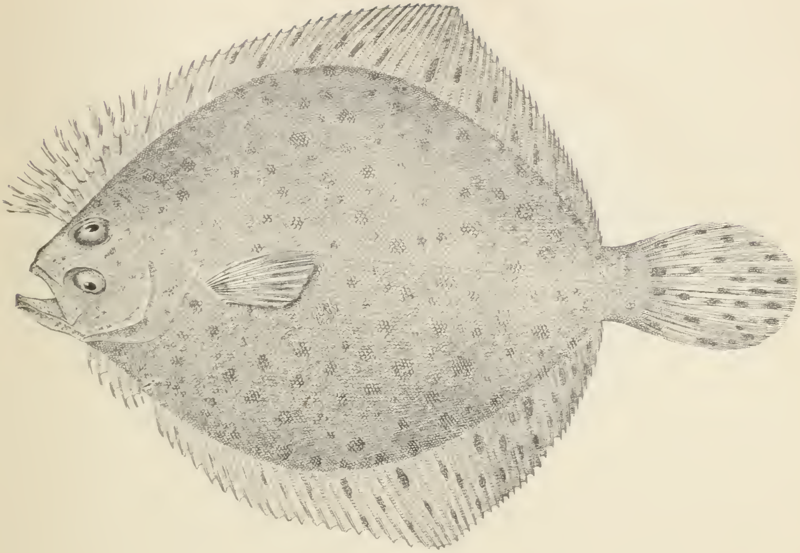


937*a*

937, 937*a*. PLATICHTHYS STELLATUS. (P. 2652.)



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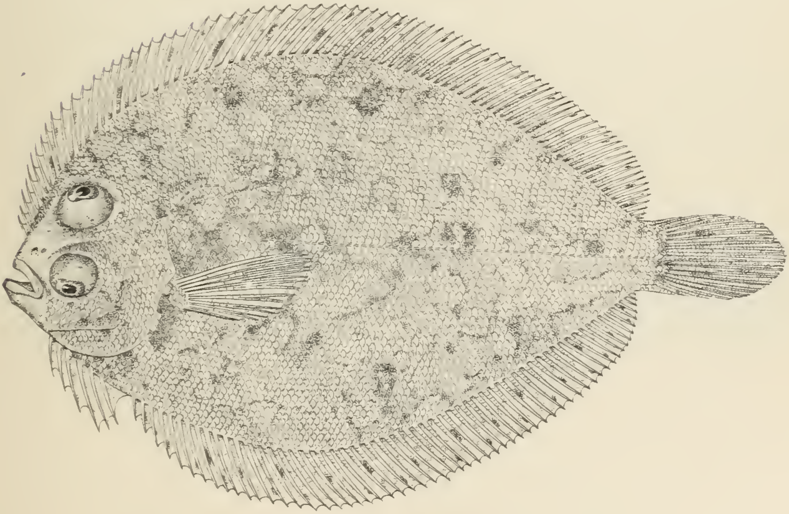

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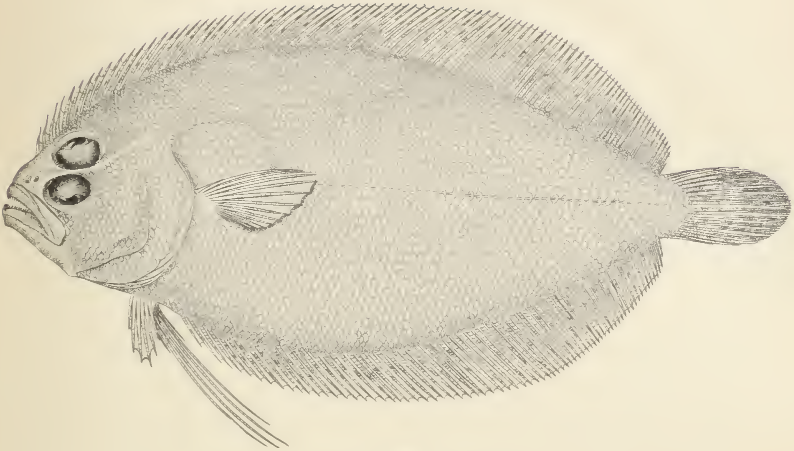
938. Lophopsetta maculata. (P. 2660.)
939. Platophrys ocellatus. (P. 2663.)



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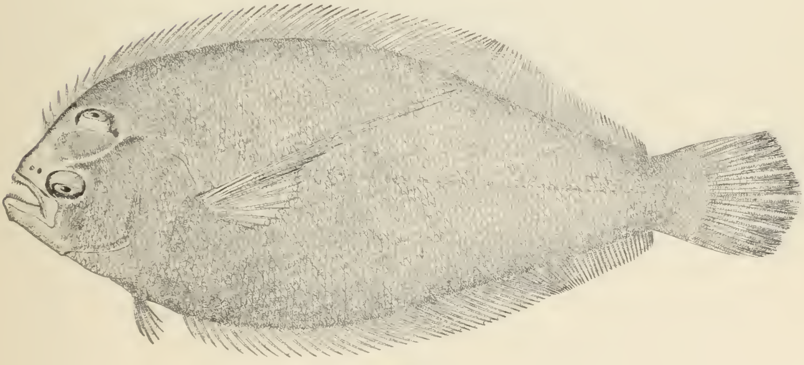

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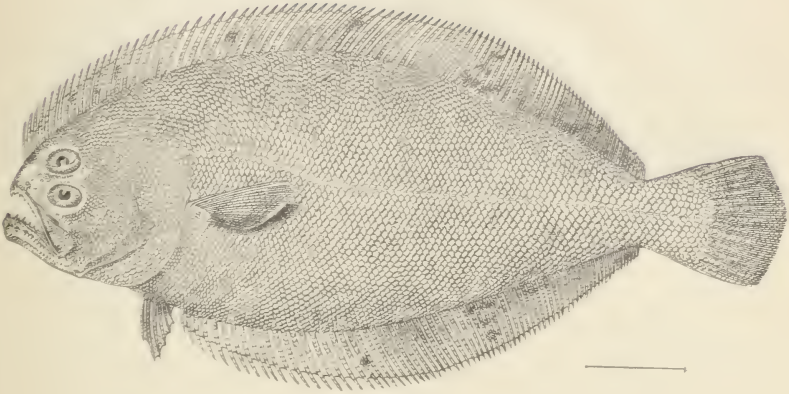
940. Trichopsetta ventralis. (P. 2669.)
941. Syacium papillosum. (P. 2671.)



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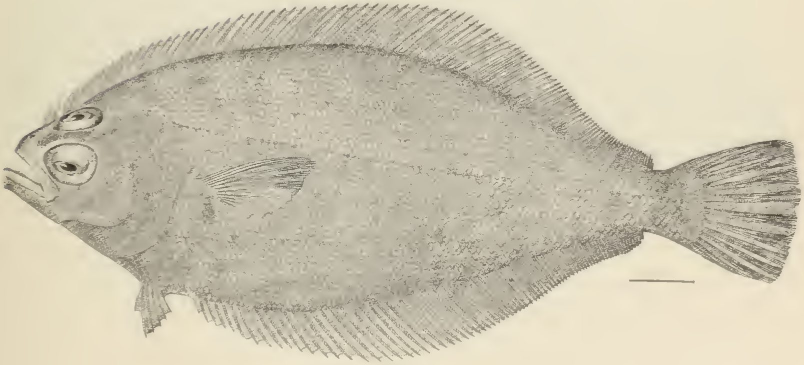

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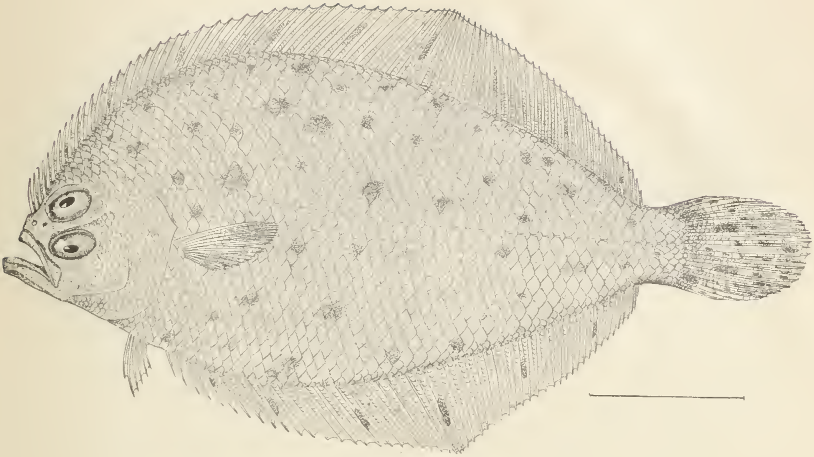
942. Azevia panamensis. (P. 2677.)
943. Citharichthys sordidus (P. 2679.)



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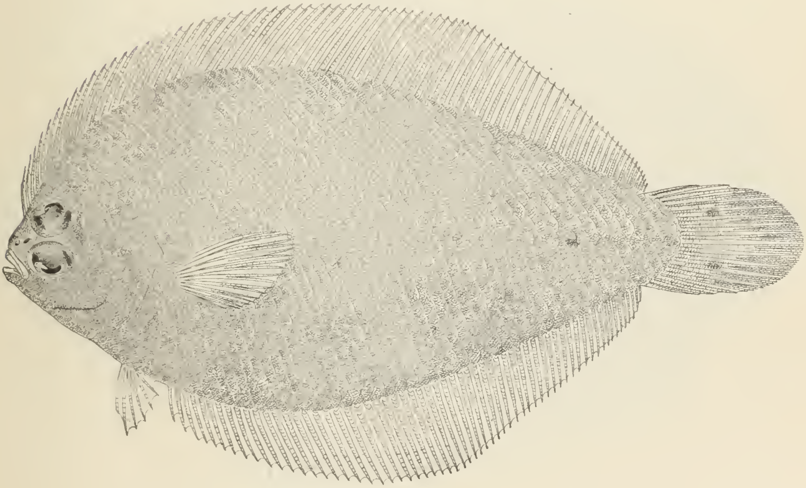

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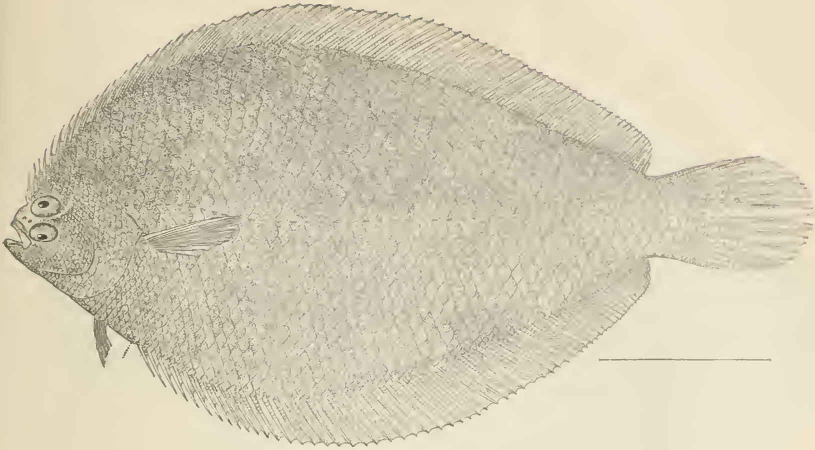
944. Citharichthys macrops. (P. 2684.)
945. Etropus rimosus. (P. 2688.)



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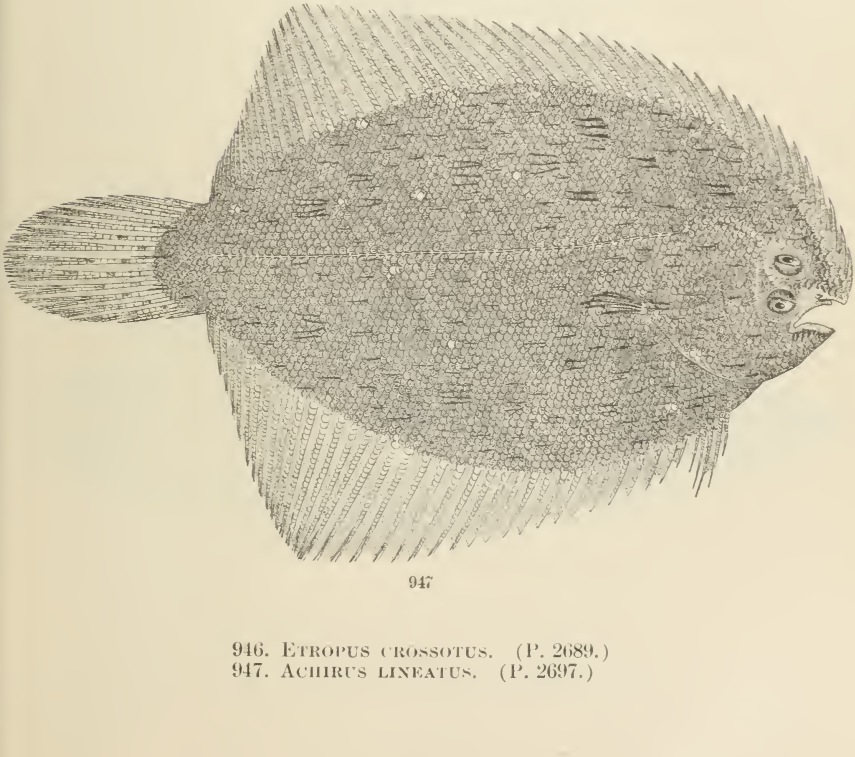

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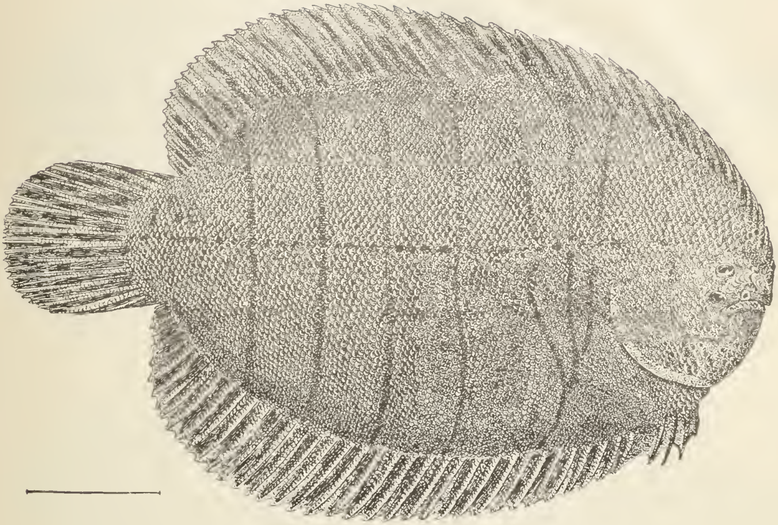
946. ETROPUS CROSSOTUS. (P. 2689.)
947. ACHIRUS LINEATUS. (P. 2697.)



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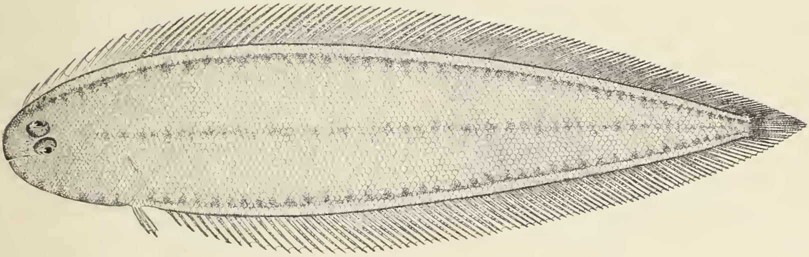

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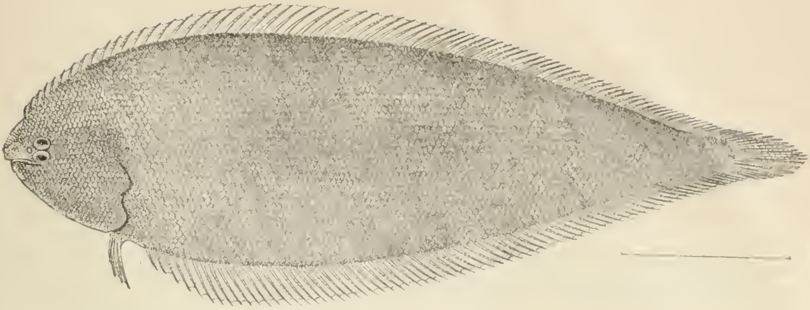
948. Achirus fasciatus. (P. 2700.)
949. Symphurus marginatus. (P. 2706.)



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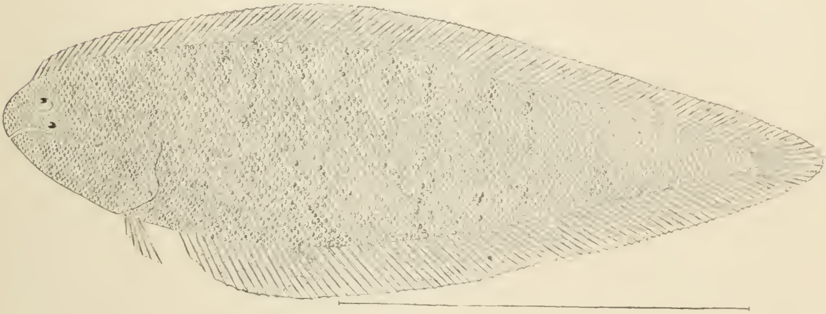

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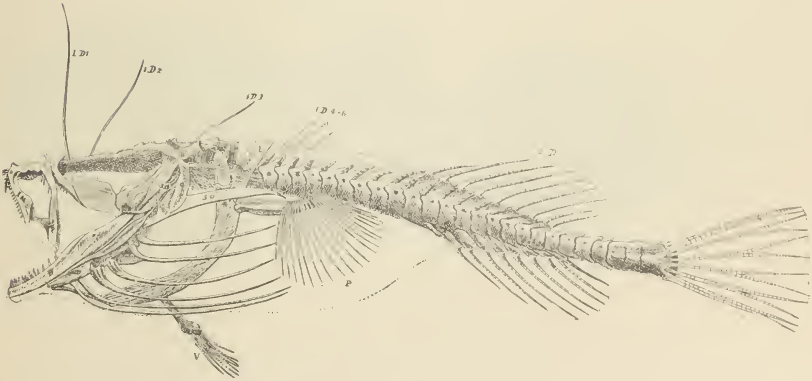

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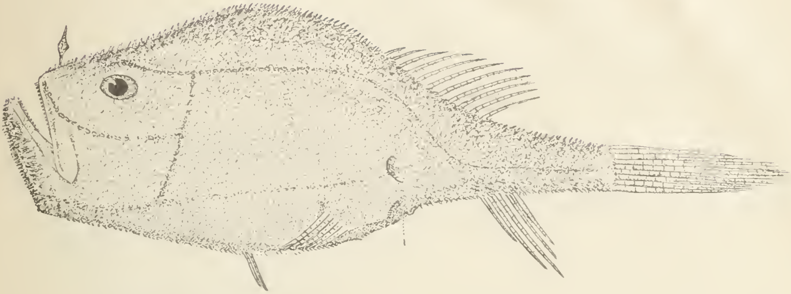
950. Symphurus plagiusa. (P. 2710.)
951. Symphurus williamsi. (P. 2711.)
952. Lophius piscatorius. (P. 2713.)



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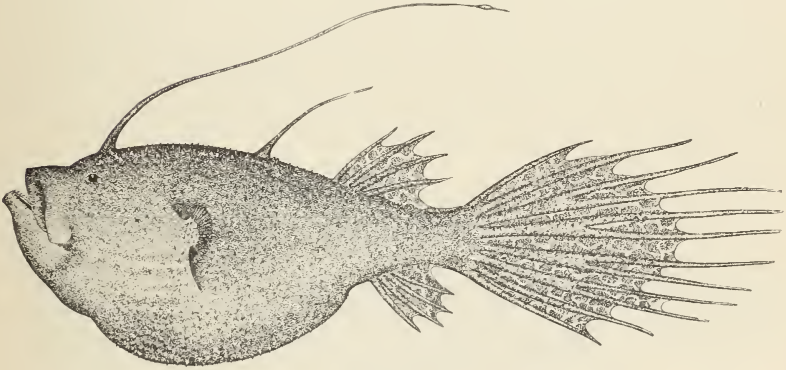

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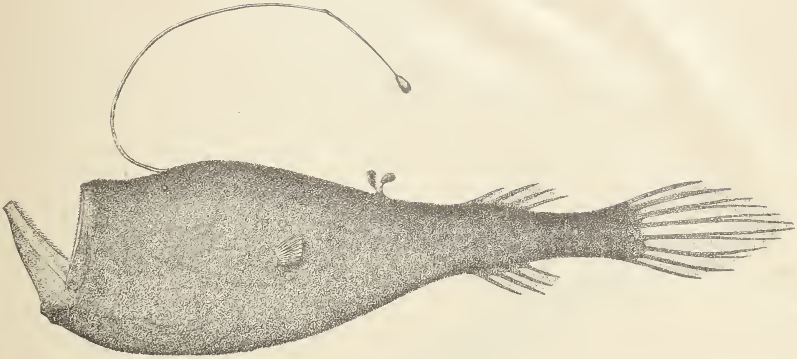
953. CHAUNAX PICTUS. (P. 2726.)
954. CERATIAS HOLBOLLI. (P. 2729.)



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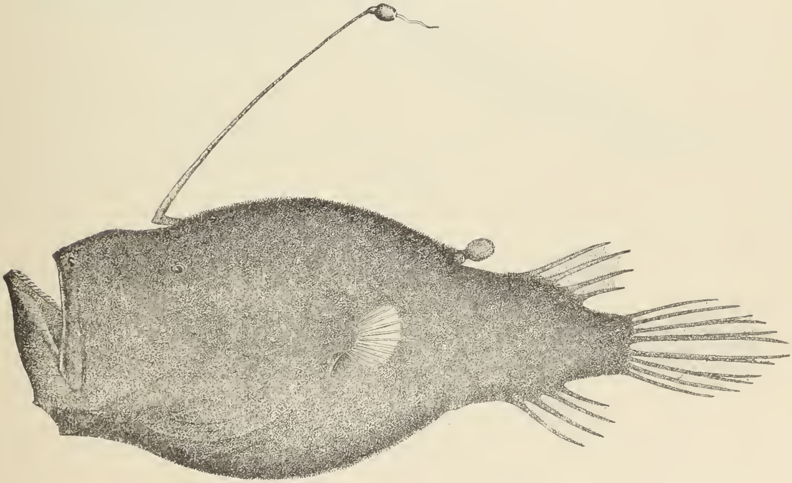

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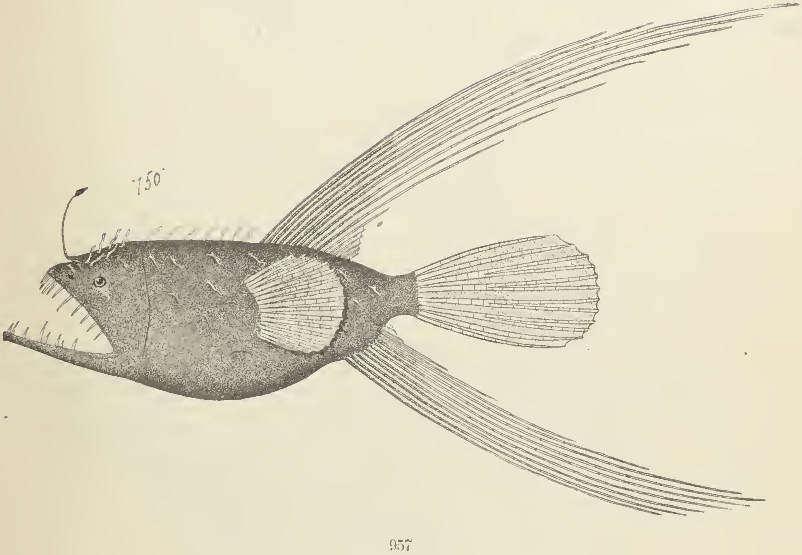
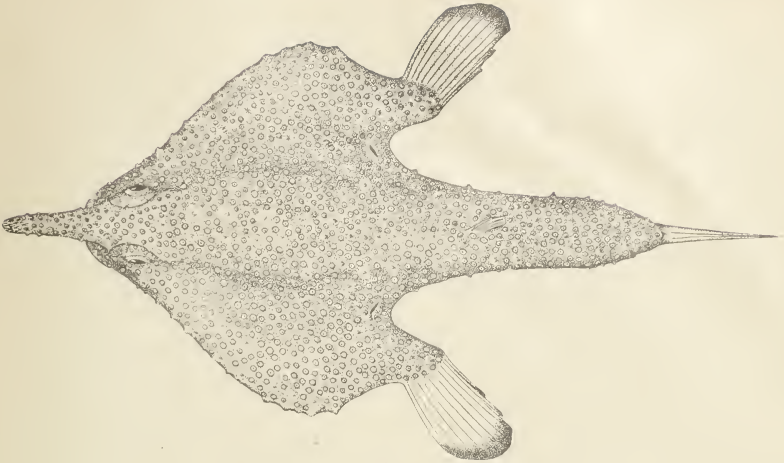
955. Mancalias shufeldti. (P. 2730.)
956. Cryptopsaras couesii. (P. 2731.)



957. Caulophryne jordani. (P. 2735.)



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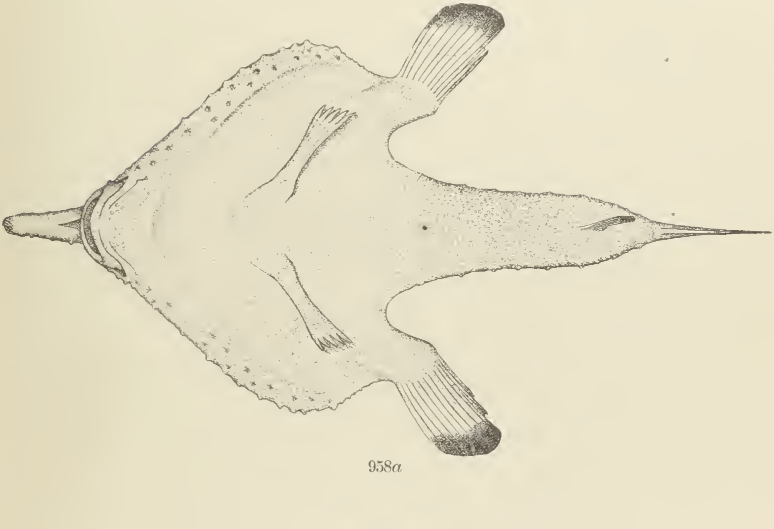

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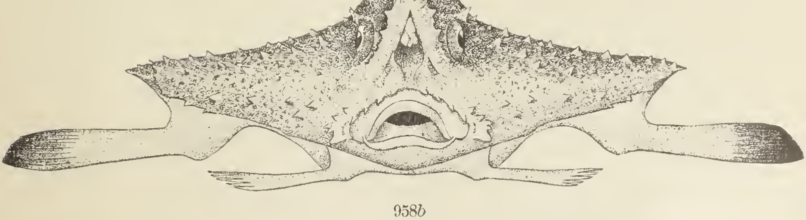

958*b*

958, 958*a*, 958*b*. OGCOCEPHALUS VESPERTILIO. (P. 2737.)

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